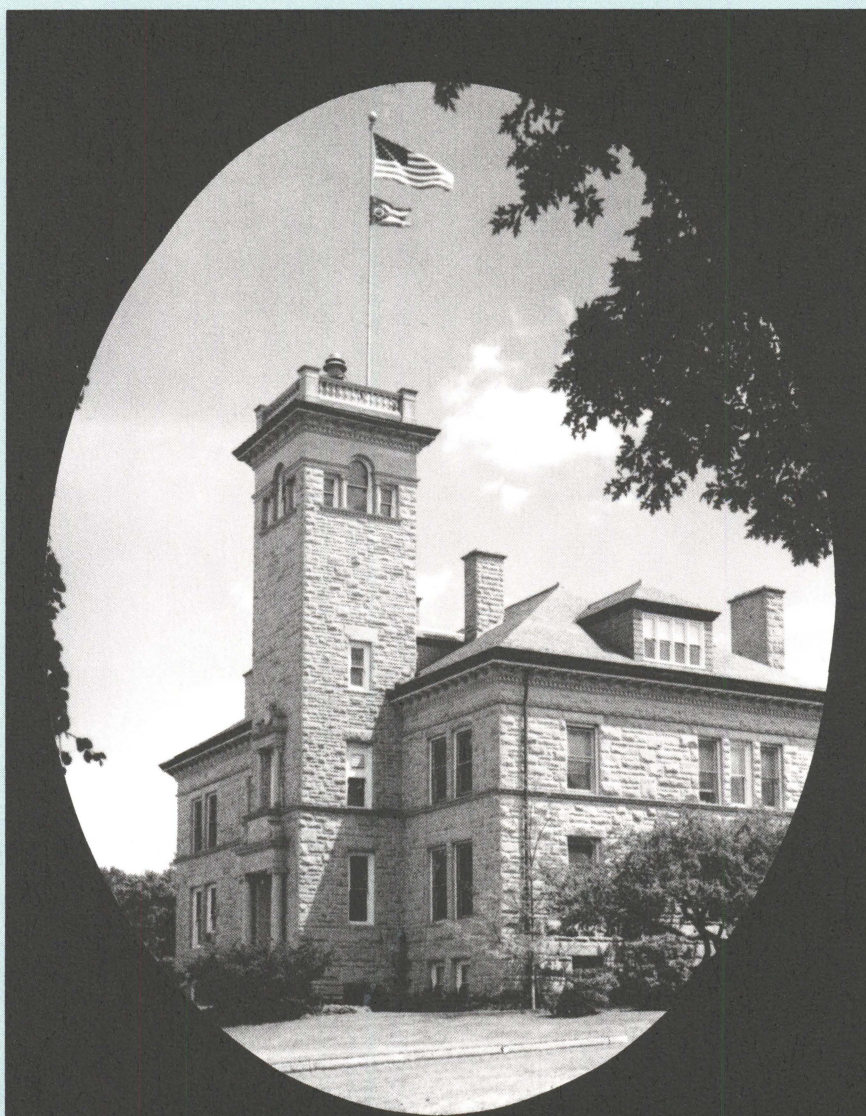




# The View From The *TOWER*



A Collection of Historical  
Facts and Anecdotal Stories  
Covering the Early Years of the  
Ohio Agricultural Research and  
Development Center



Robert E. Whitmoyer  
OARDC Historical Records Officer





Dr. Bobby D. Moser  
Vice President for Agricultural Administration  
Dean, College of Agriculture  
The Ohio State University

Dr. James H. Brown  
Acting Director  
Ohio Agricultural Research and Development Center  
The Ohio State University

All publications of the Ohio Agricultural Research and Development Center are available to all potential clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, sex, age, handicap, or Vietnam-era veteran status.



## *Contents*

Introduction . . . . .	1
State Law Establishing the Experiment Station . . . . .	2
Organization of the OAES Board of Control . . . . .	3
Land-Grant Legislation . . . . .	4
A Brief History of OARDC . . . . .	4
The View From the Tower . . . . .	7
OARDC Buildings . . . . .	31
OARDC Directors and Associate Directors . . . . .	40
A Century of Science . . . . .	42
OARDC Today . . . . .	45





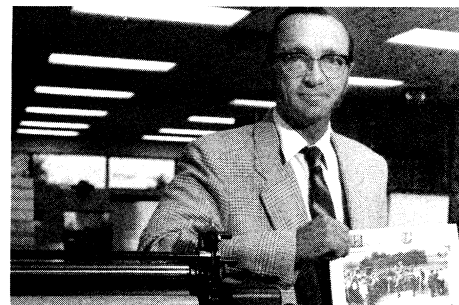


## Introduction

**T**he *View From The Tower* originated from a series of anecdotal articles written for the *Research Center News* prior to the Centennial Celebration of the Wooster campus in 1992. The title is derived from the tower of the Administration Building on the Wooster campus, from which one can see an excellent panorama of the research center grounds. From the first director, Charles Embree Thorne, to the present day, the tower provides a birds-eye view of the happenings

and condition of the research center. If the tower could talk, it would certainly recount the day-to-day history of this fine institution.

*The View From The Tower* series is not an exhaustive nor scholarly history of this institution, but rather a collection of stories that attempt to trace much of our 110-year history and also give insight into the personalities of the people and the flavor of the times in which they were part of the research center.



R.E. Whitmoyer  
Historical Records Officer, OARDC

### Ohio Agricultural Experiment Station Staff (1895)— Housed in the Adam Foss Building in downtown Wooster, Ohio



Annie B. Ayres      Bertha E. Wildman

E.C. Green

W.J. Green

C.E. Thorne

J.F. Hickman

F.M. Webster



# State Law Establishing the Experiment Station

## Law Establishing the Station

AN ACT

For the establishment of an agricultural experiment station.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That for the benefit of the interests of practical and scientific agriculture, and for the development of the vast agricultural resources of the state, an Ohio agricultural experiment station is established as hereinafter provided.

Agricultural  
experiment  
station.

SEC. 2. The location, control, and general management of the experiment station shall be committed to a board of control, which shall consist of five members, whose term of office shall be one year, and until their successors shall be duly elected and qualified. The governor of the state, and the person appointed as hereinafter provided, to be the director of the station, shall be ex-officio members of the board of control. In order to effect the immediate establishment of the station on the passage of this bill, the governor shall appoint three members of the board of control, who shall serve for one year, and until their successors shall be duly appointed and qualified.

How such  
station to be  
controlled.

SEC. 3. The board of control shall be called together by the governor at as early a date as practicable, and shall organize by the election of a president, secretary, and treasurer, who shall hold their offices until their successors are elected. Three members shall constitute a quorum.

Governor to  
be ex officio  
member of  
board of con-  
trol.

SEC. 4. The board of control shall hold an annual meeting at the date of the annual meeting of the state board of agriculture in January, and other meetings at the call of the president, at such times and places as shall best promote the objects of the station.

When board  
to be called  
together and  
how organ-  
ized.

Annual meet-  
ing of board

SEC. 5. The board of control shall locate said station, and shall appoint a competent director, who shall have the general management and oversight of the experiments and investigations necessary to carry out the objects of the station. The said board shall also make such rules, by-laws, and regulations for the government of the station and its work, and for carrying out the business and purposes of the station, as shall be necessary and proper in their judgment. It shall also make an annual report of its experiments and work to the governor of the state, and the same shall be published annually in the Ohio agricultural report, and five thousand copies separate in pamphlet form for free distribution, and the pamphlet copies to be printed and paid for the same as other public printing.

Board of con-  
trol to locate  
station, ap-  
point director,  
and make  
rules for  
government.

Board of con-  
trol to make  
annual report  
to governor.

Salary of  
director and  
compensation  
of board.

SEC. 6. The directors' salary shall be fixed by the law in proportion to the services required and performed. The members of the board of control shall be paid their actual expenses incurred while on duty, but no compensation for time or service.

SEC. 7. This bill shall take effect immediately after its passage.

O. J. HODGE,  
*Speaker of the House of Representatives.*  
R. G. RICHARDS,  
*President of the Senate.*

Passed April 17, 1882.



## Organization of the OAES Board of Control

Columbus O. April 18, 1888

The Board of Control of the Ohio State Experiment Station consists of the following members Governor Charles Foster Ex. Officer by law and the following members appointed by the Governor in accordance with the law of 1882 establishing the Station viz. A. Ohmer, Dayton; Emmett Mix, Columbus; Prof H. R. Lazenby Columbus H. J. Chamberlain, Columbus.

Organization

of the  
Board

The Board organized by electing A. Ohmer Acting President, Emmett Mix Treasurer, & Prof H. R. Lazenby Director. The salary of director is by law fixed by the Legislature, according to labor performed, & upon recommendation of the Board. The Board in advance recommends that the salary for the first year do not exceed \$800. Prof Lazenby accepted the position of Director.

The law establishing the Station is as follows, with the amendments made the next session (For continuation of minutes)



## Land Grant Legislation

**T**he major federal legislation establishing the Land-Grant Colleges, Agricultural Experiment Stations and the Cooperative Extension Service follows.

### **1862 The Morrill Act**

Justin S. Morrill of Vermont proposed the Land-Grant Act for each state to establish and maintain an Agricultural and Mechanical College. Each state would be given an amount of land which it would sell to furnish funds for the establishment of a college.

### **1864**

Ohio accepted the provisions of the Morrill Act.

### **1870**

The Ohio Agricultural and Mechanical College was established on the "Neil Farm," north of Columbus, Ohio.

### **1878**

The name was changed to "The Ohio State University."

### **1882**

The Ohio Congress appropriated \$3,000 to establish an agricultural experiment station at The Ohio State University.

### **1887 The Hatch Act**

The act provided federal funds to establish and maintain a state agricultural experiment station.

### **1914 The Smith-Lever Act**

This act established the Cooperative Extension Service in Agriculture and Home Economics in conjunction with the Land-Grant Colleges and Universities cooperating with the U.S. Department of Agriculture.

W.O. Thompson, president of The Ohio State University, wrote the original memorandum of agreement between the U.S. Department of Agriculture and the Land Grant Colleges to set up the Smith-Lever Act.

Note: By 1908, The Ohio State University had an Agricultural Extension Service in place. Mr. L.H. Goddard had been hired in 1904 as the head of Cooperative Experimentation at the Agricultural Experiment Station in Wooster. In 1905, Mr. A.B. Graham was appointed the first superintendent of extension at the university. Mr. Graham brought with him his "boys and girls clubs" from Springfield, Ohio and these became the 4-H clubs of today.



## A Brief History of OARDC

**I**n 1862, President Abraham Lincoln signed the Land-Grant College Act proposed by Justin S. Morrill of Vermont. Each state would be given an amount of land which it could sell to provide funds for establishment of an Agricultural and Mechanical College. In 1864, Ohio accepted the provisions of the Morrill Act. The state of Ohio received 630,000 acres of land scrip which sold at an average of 54 cents per acre for a total of \$340,894.70. In 1870, The Ohio Agricultural and Mechanical College was established on the "Neil Farm" north of Columbus, Ohio.

In 1878, the name was changed to The Ohio State University and the educational emphasis was towards a liberal arts education rather than agricultural and mechanical arts. This alienated the agricultural community within the state and many boycotted the university. In 1882, an attempt was made to heal this rift with the establishment of an agricultural experiment station at the university. The new experiment station was incorporated with the university

farm, and the two agriculture professors, W. R. Lazenby and Norton S. Townshend, divided their time between classroom duties and directing research on the station land. The budget was a meager \$3,000.00 per year. The work went slowly and was often in conflict with the OSU farm which produced food for the college dorms. Moreover, the city of Columbus dug sewers through the plots, paved roads around two sides of the farm, and the river flooded the area each spring. The only good farm foreman the station had found, Charles Thorne, quit to become editor of *Farm and Fireside Magazine* in Springfield, Ohio. From this position as editor, Mr. Thorne launched a vigorous campaign to separate the experiment station from the university and also to convince the university to offer more agricultural and mechanical courses, rather than a liberal arts curriculum.

Since many land-grant universities had moved to become liberal arts institutions and away from the agricultural and mech-

anic arts, the U. S. Congress passed the Hatch Act of 1887 which provided funds for states to establish an agricultural experiment station under separate federal funding and to provide \$15,000.00 annually for continued support. Dissatisfaction with the Ohio Agricultural Experiment Station's work had already caused a separate Board of Control to be named and with the acceptance of the Hatch Act funds, the Board hired Charles Embree Thorne as the first full-time director in 1887. At Director Thorne's urging, the Board of Control received permission from the Ohio General Assembly to relocate the station by open bids from each county in the state. Warren, Clark and Wayne counties submitted bids and Wayne County's bid of \$85,000 in monies and land was accepted as the high bid.

In 1892, the Ohio Agricultural Experiment Station moved from the university at Columbus, to Wooster in Wayne County. The move took place by wagon train and followed Route 3 from Columbus to Wooster. The station took possession





of 470 acres of farmland just south of the town of Wooster. The bulk of the land was composed of the two "Rice Farms" established by Barnhart and Simon Rice in 1822. Both of the original farm houses are still on campus and are historical landmarks. Wayne County's proposal to fund the purchase of the station via tax bonds was declared unfair by the Ohio Supreme Court and the debt was assumed by the state but the station stayed in Wayne County anyway.

Over the next three decades Director Thorne supervised the growth of the station both physically and scientifically. The sandstone building complex on the central campus was constructed, with the Administration Building being dedicated in 1897. A large dairy barn was constructed and 26 miles of field tile were laid to prepare land for the Wooster test plots. These plots, hundreds of 1/10 acre fields, were to be used by Director Thorne and his staff to illustrate to both the farmers of Ohio and to the entire Midwest how to bring old, farmed-out land back to maximum productivity. This work was to make Thorne famous throughout the country. The added work of the station staff in areas of pest control, animal nutrition and animal husbandry would make the station known worldwide. In 1903, Director Thorne hired L.H. Goddard of Washington Court House, Ohio who had been very active with The Ohio State University College of Agriculture Student Union. Mr. Goddard set up the Department of Cooperative Experimentation at the research station. The following year the university hired A.B. Graham of Springfield, Ohio to become the first director of Agricultural Extension. Mr. Graham and Mr. Goddard would map out the Ohio Cooperative Extension Service. W.O. Thompson, president of The Ohio State University, drafted the original agreement linking the federal government and the land-grant colleges through the Cooperative Extension Service. This became the Smith-Lever Act of 1914. Mr. Graham also brought with him his boys and girls clubs from Springfield and these would evolve into the 4-H clubs of today. The era of Director Thorne was one of farm land reclamation, fertilizers, horses and steam power.

The horses and steam power were soon to be replaced.

Director Thorne retired in 1921 with a worldwide reputation as an agronomist and left behind a solid, well operating agricultural experiment station with a similar reputation. C.G. Williams became the station's second director that same year. Under Director Williams' guidance, the Departments of Agricultural Engineering and Home Economics were established in 1926. Director Williams, also an agronomist, became an expert in breeding and culture of wheat, oats and corn. Many new varieties such as Trumbull, Gladstone and Portage were developed under his directorship. The station focused on the problems of mechanized farming and the disappearance of abundant farm labor.

Director Williams retired in 1937 and was succeeded by Edmund Secrest, a station forester. Director Secrest had been employed at the station since 1905 and had developed most of the re-forestation programs in the state. He also developed the Forest Arboretum (later named the Secrest Arboretum) into one of the best long-term plant repositories in the nation. Director Secrest was successful in obtaining funding and expanding the station which continued into the 1950s. During this period, the emergence of the high-tech laboratory brought investigations of many problems from the field inside to the laboratory bench. This has continued to the present day.

In 1948, Leo L. Rummell was named both dean of the College of Agriculture at The Ohio State University and director of the agricultural experiment station at Wooster. Thus, the directorship was transferred from Wooster back to the university at Columbus. Director Rummell had worked for Director Thorne as an editor from 1915 to 1917 and left the station's employ to become editor of *The Ohio Farmer* and a consultant in the emerging Ohio food industry. He was a member of The Ohio State University Board of Trustees and the OAES Board of Control at the time of his appointment. Director Rummell united the depart-

ments in the College of Agriculture and the departments at the experiment station at the academic level with the department chairman at Columbus and an associate chairman at Wooster. The funding for the college and the experiment station remained separate as both state and federal line items in their respective budgets. The OAES continued to expand under the direction of Dr. Rummell until he retired in 1959. Many professors now divided their efforts between research, teaching and extension duties with split appointments in each area. In 1948, William E. Krauss was appointed the first Associate Director of the experiment station, a post he would hold until 1969.

In 1960, Dr. Roy M. Kottman became the fifth full-time director of the OAES when he was named dean and director, replacing Director Rummell. Dr. Kottman would soon be named director of Extension, thus becoming the first person to administer all three branches of the agricultural effort in the state: teaching, research and extension. The OAES expanded rapidly with several new buildings under Dr. Kottman, including Gerlaugh Hall (Animal, Dairy and Poultry Science departments) in 1964, the 1,000-seat Fisher Auditorium in 1968 and Selby Hall (Plant Pathology, Electron Microscopy and Environmental Science) in 1972. Farming became a large agribusiness during the Kottman era and the station worked to solve problems and formulate advice to these areas.

In 1965, the name of the station was changed from the Ohio Agricultural Experiment Station to the Ohio Agricultural Research and Development Center. In 1969, with the retirement of Dr. Krauss, James M. Beattie was appointed associate director. He was succeeded by Clive W. Donoho, Jr. in 1973. Dr. Donoho would serve as associate director until 1982. In 1981, Governor James Rhodes signed legislation merging the research center with The Ohio State University. The merger took place officially in 1982, 100 years after the establishment of the station. Dr. Kottman retired the same year as the first vice president for Agricultural Administration at The Ohio State University.



In 1983, Dr. Clive W. Donoho Jr. was appointed director of the OARDC and served a short time until his retirement in 1984. In 1985, Frederick E. Hutchinson was appointed OARDC director. This was a period of budget reduction and funding problems at both the state and federal levels. Unstable funding and commitments resulted in deficits and enforced down-sizing of staff positions. In 1986, H. Russell Conrad was appointed as associate director.

Dr. Hutchinson was promoted to the position of vice president for Agricultural Administration at The Ohio State University in 1987. He was replaced as director by Kirklyn M. Kerr who served from 1987 until 1991. In 1989, Dr. Conrad retired and was replaced by James H. Brown as associate director. In 1990, Dr. Hutchinson was promoted to the position of university provost. Former Ohio Cooperative Extension Services director, Bobby D. Moser became vice president

for Agriculture in 1991. Dr. Brown is currently serving as acting director as a search progresses for a director.

The station continues its primary mission of research targeted at better food and fiber production, environmental and water quality issues for both rural and urban populations, and continued emphasis on new, improved and safer products for use in the agricultural endeavors of both the state of Ohio and the world community.





# *The View from the Tower*

*An Anecdotal History of the Wooster Campus of OARDC*

Bob Whitmoyer, Historical Records Officer

## The View from the Tower

If you climb the upper floors of the Administration Building and travel some near-forgotten passages, you'll find a steep set of stairs. (These areas are closed to the staff and public for safety reasons.) Climb the stairs, all four right turns, and you'll reach a small room at the top of the tower. The center of the room is occupied by a massive, cast-iron spiral stairway cast in 1892. You pick your way up the winding steps, exit through a 4-foot-high door, and . . .

Wow! You're on the outside of the tower with only a 3-foot-high railing keeping you from a 100-foot fall. The view is breath-taking as you look over the shoulder of history.

Why a tower? Indian attacks? Egg-drop contests? No. The tower was built to provide an observation platform for weather data collection and, in pre-telephone days, an observation post to look over the station grounds. In 1895, the first station photographer lugged a bulky 5-by-7-inch bellows view camera to the top of the tower and shot four views of the station. Over the years, nervous photographers have leaned over the railing to record the growth of the center. In 1990, I took my trusty 4-by-5-inch Graflex view camera to the lofty perch and recorded the view for the 1990s.

The "view from the tower" gives us a wonderful record and insight into the history of our research center. It also provides the title and inspiration for this publication. The photographs presented are displayed in the OARDC museum, located in the basement of the Administration Building. Pictured here are the first view from the tower taken in 1895 and the present view. Nearly 100 years have created many changes. In the background of both photographs is the large farm house near the present Farmer's Market. The tower and the house have seen it all. Too bad they didn't write it down—it would have made the historian's job a lot simpler.



The view from the tower, 1895. The arrow marks the farm house.



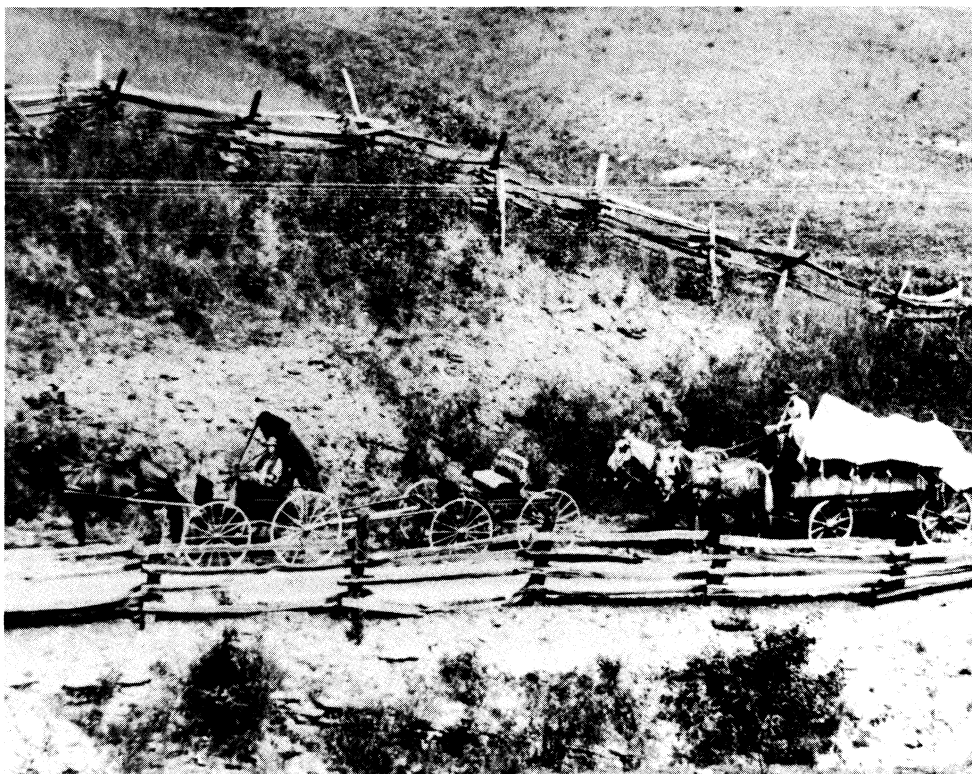
The view from the tower, 1990. Thorne Hall and the Research Services Building now stand between the tower and the house.



## How We Got Here . . .

In 1887, U.S. Congress passed the Hatch Act, giving monies to all state land-grant colleges to set up agricultural experiment stations. Ohio's land-grant college, now The Ohio State University, had already created its agricultural experiment station in 1882. It consisted of one building and several acres of experimental plots by the Olen-tangy River, near the present site of Lincoln and Morrill Towers. The people given the task of administration considered the new duties a burden on their time. The river flooded the plots every spring. The university and the city dug ditches through the plots for sewer construction, and the only decent farm foreman they found, a young college graduate with more English courses than botany, got fed up and took a job as editor of *Farm and Fireside Magazine*. The fledgling station was in deep . . . trouble.

The matter quickly became a concern of the station's board of control and the agricultural lobby interests in the state. What to do? They hired back the farm foreman and gave him the title of director. They asked him for a formal proposal on how to get the station working. The new director's reply was brief, blunt and to the point: "Move the station to some decent farm land and as far away from the university as possible." When asked how to do this, he replied, "Sell the station to the county that bids the most money or land to get it." After a lot of



A wagon train helped move the Ohio Agricultural Experiment Station (now OARDC) from Columbus to Wooster in September 1892.

argument, the deal was done and Wayne County was the best bidder with a site on a hill south of the little town of Wooster. Thus in 1892, the station packed everything it owned into two wagons and three buggies and headed north. The caravan roughly followed the present path of State Route 3.

Who was this brash, opinionated farm

foreman/now director? He was, of course, Charles Embree Thorne, who remained director for more than 20 years. He was always opinionated, always totally committed to the station, and is now recognized as one of the leading agriculturists of his time.

## All In A Day's Work — 1895

Charles Embree Thorne, the station's first director (1887-1921), was a fair and honest man, dedicated to the station and its employees. However, like most employers at that time, he asked a bit more than most of us would be comfortable with in the 1990s. Here are some of the director's rules published in the station by-laws:

1. Work hours (a six-day week): Men, 7 a.m. to 6 p.m. (1-hour lunch); women, 7:30 a.m. to 6 p.m. (1 1/2-hour lunch). Caring for horses, gathering supplies, going to or from fields, etc., was to

be done outside the normal work day.

2. Employees were not paid for hours exceeding 10 per day even when required to work over.
3. Employees were not paid for Sunday labor even when required.
4. There was no vacation or sick time, but employees could be absent 12 days per year without loss of pay; these included seven specified state holidays.

5. No unnecessary conversation while on duty.

6. Smoking, use of liquor or visiting liquor saloons was prohibited anytime—on duty or off.

Any infraction of these rules or the habitual use of profane language was grounds for immediate and permanent dismissal.

Your normal day's work might have gone like this ...

The wheat plots are cut, shocked and dried. The weather is warm and dry, but





rain is developing in the west. The thresher has been moved to the fields east of where Fisher Auditorium now stands. It is powered by an 18-horsepower, 6 x 10 Russell Steam Traction Engine made in Massillon. The engine was purchased Nov. 3, 1894, for \$545. Your job is to run the engine. . . .

4:00 a.m. Arrive at the buggy shed (current site of Thorne Hall). Unharness your horse; water, feed and stall it for the day.

4:15 Walk over to the power house and meet a station teamster who has brought the water wagon and team from the barn. The team is his own; he and the horses were contracted as a unit by the station for the summer. You fill the water wagon (100 gallons) and shovel on a half ton of coal.

5:00 Dawn is breaking. You arrive at the field, light a wood fire in the Russell's boiler, and start filling oil cups.

5:45 You start adding coal to the firebox, double-check the water level in the boiler, and open all drain cocks on the engine and steam pipes.

6:00 The threshing foreman arrives, checks the grain shocks for dryness, and starts his 45-minute routine of oiling the thresher.

6:45 The threshing crew members arrive, having left their homes an hour or so earlier. There's 15 pounds of steam up on the boiler so you start the engine turning over, venting the exhaust through the smokestack to increase draft on the fire . . . steam will come up quickly

now . . . ah, the smell of Ohio soft coal—nothing like it. Close all drain cocks, add more coal, double-check the water level.

7:00 The threshing foreman waves his hat, your signal to pull the rope at the top of the canopy over the boiler. The steam whistle's piercing scream can be heard for miles. You ease the throttle forward and start the 150 feet of mill belt that connects your engine to the thresher. Your 10-hour normal work day has now begun. All over the station, people have heard the steamer's whistle and are already at work at their various jobs.

This will continue—with a one-hour lunch break (except for the

crew, which is pushed by impending rain and will eat in shifts without stopping)—until 6 p.m., when the station work is done for the day. After this, the equipment and the animals are put away and supplies gathered for the next day. By 6:45 p.m., most have harnessed their horses and are on their way home.

7:15 p.m. You have dropped the fire on the boiler, replenished the water supply, double-checked everything, and are ready for the half-mile walk back to the buggy shed and home. There are four plots left to do, and the foreman wants an early start so you'll be back at 4 a.m. But it's a real good job and pays \$2.50 a day—that's better than most.



**“Have a nice day.”** A typical day's work on a threshing crew, circa 1895, could run from 4 a.m. to 7 p.m. Workers received \$2.50 a day.



## Who Are These Men?

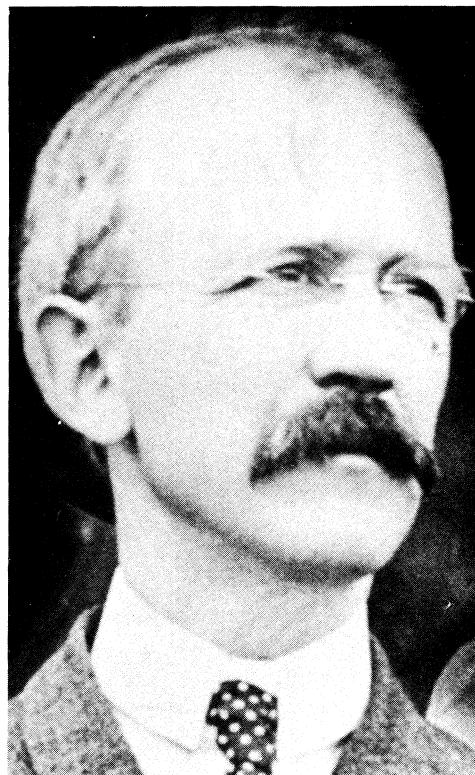
**W**J. Green joined the station before the station moved to Wooster in 1892. He was in the Horticulture Department at the university and became the first department head of horticulture at the Wooster campus. He also served as chairman of the Forestry Department at the station. He is pictured at his desk, checking the inside of apples for defects and disease. The picture was taken about 1915. It is worth-while noting the “high-tech” equipment—a pocket knife—used to evaluate disease at that time. These methods are still useful and used extensively. Due to Mr. Green’s seniority, being with the station longer than any other staff member, he was named by the Board of Control to be “vice director” of the station and would be in charge when Director Thorne was absent. He had a long and honorable career with the station, retiring not long after the photo was taken.

Augustine Dawson Selby joined the station as a botanist and chemist in 1892-93 when the station moved to Wooster. He served as department head of both botany and chemistry, although he soon devoted his full time to the study of weeds, seeds, plant breeding and plant diseases. Mr. Selby was one of the first to use the term “plant pathology” on

letterhead and in-station correspondence. It would be nearly 60 years later before a Department of Plant Pathology would be officially formed.

Even as Director Thorne preferred to distance himself from the university, Mr. Selby embraced close ties with Ohio State wholeheartedly. He was both a botanical scientist of renown and a pro-education activist. Here is a partial list of his endeavors:

- Helped form and served as president of the OSU Agricultural Student Union in 1895, forerunner of today’s 4-H and FFA programs.
- First to send faculty from the station to Ohio State for advanced studies and to encourage students to learn research at the station.
- Worked aggressively with state officials and the Board of Control to fund buildings such as the horticulture and forestry building at Ohio State and to procure branch farms for the station.
- Instrumental in forming a national society for plant pathology and its publication, *Phytopathology*. Also was an AAAS fellow and a charter

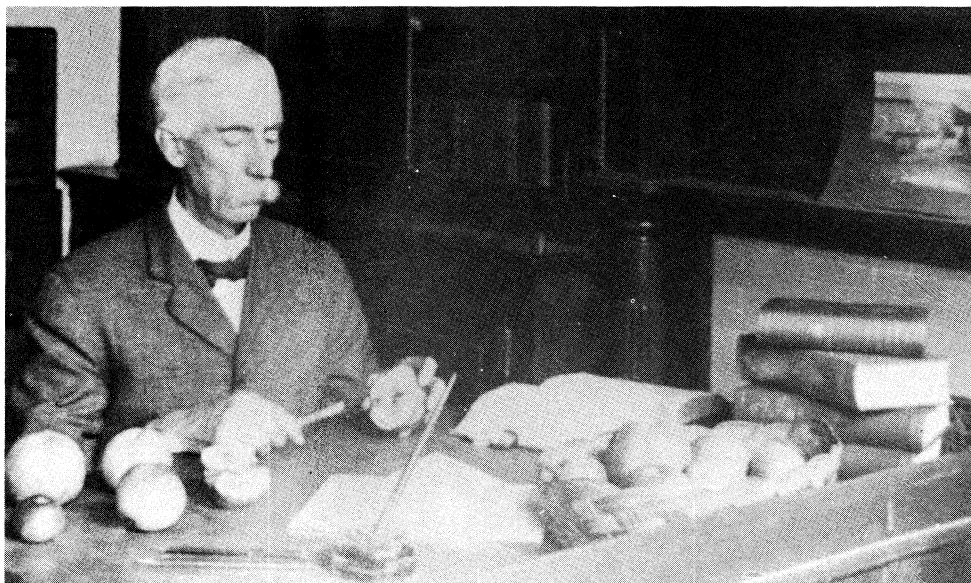


**Botanist and chemist Augustine Dawson Selby was OARDC’s first “plant pathologist.”**

member of the Ohio Academy of Science.

- His weed manuals and *Handbook on Plant Diseases in Ohio* served as standard textbook on the subject for many years.

Mr. Selby was a consummate writer and enjoyed a close working relationship with Director Thorne, often assisting Dr. Thorne in writing and editing station publications and correspondence. By 1918, his health was failing, suffering from lung ailments and fatigue. He worked part time until 1923, when he retired. Selby Hall at Wooster is named for this early pioneer in the field of plant disease study.



**W.J. Green—horticulturist, forester and first “vice director.”**



## The Mighty OAES Bank Barn

There are lyrics to a recently popular country-western song that go as follows: "If you're going to play in Texas, you got to have a fiddle in the band." Well, if you're going to farm in Ohio, you've got to have a barn. After quickly constructing the first small, stone building on campus in 1892-1893, plans were implemented to construct a barn at the station. This was done in 1894. And what a barn! There were some good-sized barns in Ohio, but this was one of the largest of its type. The measurements were awesome. The barn was 230 feet long and 48 feet wide. Sixty feet high, it covered more than 11,000 square feet. The driveway ramp alone was

30 feet by 50 feet (the area of the average four-bedroom home).

Construction procedures were a little different in 1894 than they are today. You couldn't just ring up the local lumber store and order a barn kit. The master carpenter was John Starn, from near the present town of Smithville. First, a sawmill was brought in and erected near the present site of Secrest Arboretum. The timbers were cut and sawed on site from a large woods in the area. Combinations of white and red oak, chestnut, and hickory were used. The framing timbers were assembled without nails or bolts; they were fitted together in mortise joints

and pinned with wood nails. (The Amish still build barns in this manner.) About 100,000 board feet of lumber were used in the frame alone, another 200,000 feet for floors, siding and roof sheeting. The entire structure rested on a sandstone foundation. The stone was quarried on site (near the present Research Operations facility). The roof was slate and incorporated on the front view was the monogram "OAES 1894" in 30-foot high letters. The real feat of the roofers was on the back side of the barn, which was seldom photographed: here they spelled out "Ohio Agricultural Experiment Station" in equally large letters.

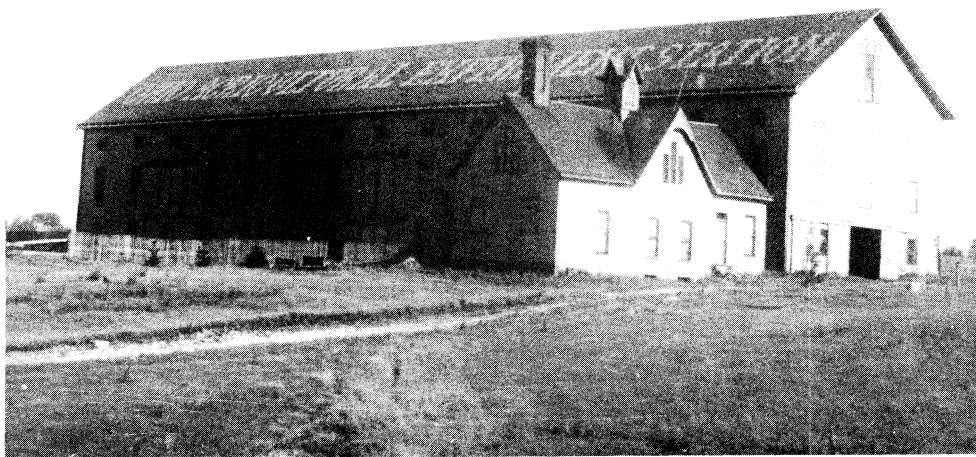
Why such a barn? Did we have that many cows? Did Director Thorne just want a bigger barn than the other guys? No. This was, in fact, a working laboratory for agricultural research at that time. Over the years, the barn hosted different barnyard configurations, such as cement, dirt, wet, drained gravel, in the manure/fertilizer research. At least six different milking stanchion configurations, milking machines, uncounted types of gutter and cleaning ideas for the dairy farmers were built, tested, torn out, and replaced with the next idea. Later, silos grew up around the barn like mushrooms, were tested for their storage capability, then were razed and replaced with new ones of different configuration. All of the results were written up and released to Ohio farmers in a steady stream of OAES bulletins covering 50 years.

To the rear of the main barn stood a smaller structure, built at the same time, a fully-equipped dairy and creamery. Here, milk and butter production from various cattle types and feed programs were studied. The creamery was destroyed by fire in 1913 and never rebuilt.

The great barn stood for 70 years, and when it was torn down in 1964 to make room for the construction of Gerlaugh Hall, its timbers and wood-pinned joints were found to be in perfect condition. Whatever else he may have done in life, Master Carpenter John Starn of Smithville knew how to build a good barn.



The front view of the bank barn around 1911. Note the addition of roof-top ventilators for better air flow. The Russell steam engine is seen in front, belted to a thresher inside the barn.



The rear view of the barn, showing the creamery and roof lettering (photograph taken about 1895).



## Carlos Grant Williams, Our Second Director

**C**arlos Grant Williams was an Ohio product, born in Gustavus in Trumbull County. Dr. Williams joined the station staff in 1903 as a member of the Agronomy Department. His specialty was wheat breeding, and during his career he created three original varieties of wheat—Trumbull, Gladden and Portage. These varieties were widely accepted, and Dr. C.G. Williams was well-known throughout the country for his work.

In 1906, Dr. Williams became chairman of the Agronomy Department, a position he held until 1921, when he succeeded Dr. Thorne as director of the experiment station. He was the second director of the station and remained at that post until his retirement in 1937. In 1957 the new agronomy building was named Williams Hall to honor Dr. Williams for his long service and many contributions to the research center.

C.G. Williams was quite different from the director that he replaced. Where Dr. Thorne was outspoken and argumentative, Dr. Williams was a quiet, soft-spoken person. He was a very competent director, who had the wisdom and resolve of purpose to guide the station through the many problems of the Great Depression of the 1930s.

Dr. Williams had a perception and insight into both science and life around him, which he sometimes expressed in the form of poetry. He published some of his poems; here is Dr. Williams' 1923 observation "On Seeing Some Workmen Building Some Steps":

"I saw four men at work on a wee job of brick laying. Five steps there were. (I wonder why not a man for each step?)

First, a little earth had to be dug away and placed at the side.

One man dug this and three looked on.

I think they wished him well, but I do not know. Then came some measuring and leveling.

One man did this, too, while the others looked on.

Perhaps it is helpful to have some one look on—psychologically, or otherwise helpful.

Perhaps these onlookers were suggesting to the worker how by autosuggestion or otherwise he might accomplish this task more acceptably.

The job was finally completed. How, I do not know, for there were only four men about and there were five steps!

I understand from the man who paid the bill that it was a fairly good one. Just what I do not know."

Dr. Williams continued to live in Wooster after his retirement and was active with both the station and the town until his death in 1946.



Dr. C.G. Williams was the experiment station's second director.

## The Oldest Building On Campus?

**W**hat is the oldest building on campus? Well, that is not an easy question to answer. First, there are two possibilities—the oldest structure and the oldest state building. The first building constructed by the experiment station is still here. It is the east half of the present LPCAT facility, or for us old-timers, the old mail room. This was constructed in the spring of 1893. The second half was added later.

This building served as a laboratory/head house for the greenhouses constructed at the same time, on the current site of the Thorne Hall parking lot. The basement of the building was the boiler room and early maintenance facility.

As to the oldest building on campus, there is an even tie between two structures. To explain how this can be, we must go back

a few years. In 1821, Mr. Fredrick Rice, a Revolutionary War soldier, purchased the tract of land now occupied by the research center. The deed was transferred from President James Monroe to Fredrick Rice on May 12, 1821. This tract of land was part of the "Congress Lands" set aside by the U.S. Congress for sale by the U.S. government. The actual sales in the Wooster area were handled by the Bezaleel Wells Co. The general area was



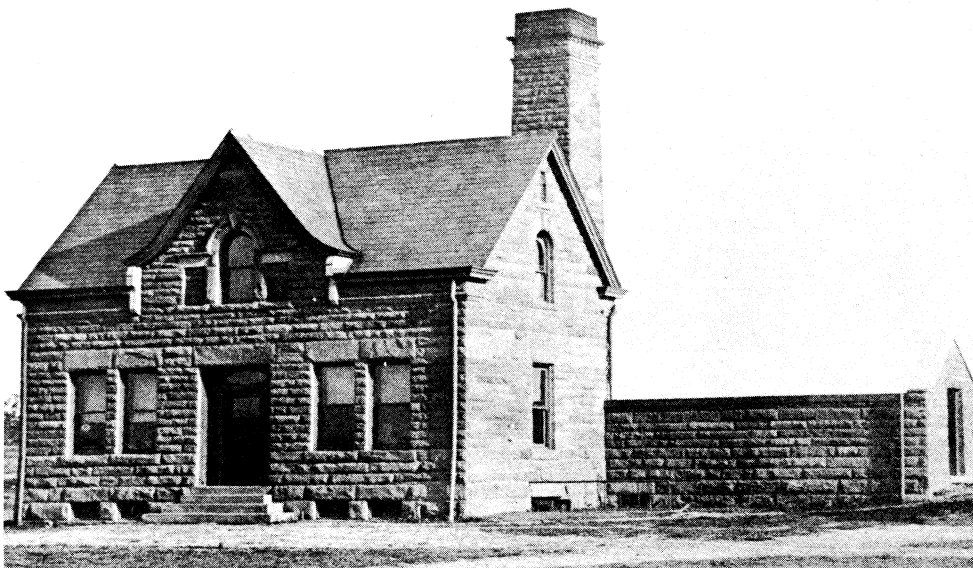


named the “Madison Tract,” and thus the later term, “Madison Hill.” By 1820, the land was being sold in 80- to 120- acre lots at \$1.25 per acre, one-fourth required as down payment.

In March 1822, Fredrick Rice divided the property into east and west farms. The west half was deeded to son Simon Rice, and the east half to son Barnhart Rice. During that summer and fall each son built a house. Simon Rice built the brick farm house that is now known as the Rice House. It is located just east of the present maintenance building. Barnhart Rice constructed his house from native sandstone quarried on his farm. This house is located near the research operations facility and next to the Rose Garden. It is sometimes referred to as the Stone House. Since both structures were started around 1822 and there is no record of which son finished his first, we'll give them an equal date of 1822.

So much for the oldest or earliest. How did the rest appear? During the first 20 years, the station complex was under a constant state of construction. This was the first period of rapid expansion. The following list gives a reasonably accurate account of how the old part of the research center evolved (parentheses indicate current use):

1. The original building, 1893 (LPCAT).
2. OAES bank barn, 1894 (destroyed, 1964).
3. Administration Building, 1897 (office space).
4. Biology Lab (pathologium), 1898 (historical records).
5. Addition to the original building, 1903 (LPCAT).
6. Original power house, 1909 (destroyed, 1949).
- 7 Entomology Building, 1910 (Agronomy headhouse).
8. Abattoir (slaughterhouse), 1910 (Japanese Beetle Lab).
9. East wing, Administration Building, 1913 (office space).



**The first OAES building on the Wooster campus (1893).**



**The Barnhart Rice House (1822).**



**The Simon Rice House (1822).**





## Charles E. Thorne: Our First Full-Time Director (1887-1921)

**M**uch has been written about the details of the early days of the Ohio Agricultural Experiment Station—who did what, where and for how much. I have written in earlier articles some about Director Thorne's rules and the flavor of the times. In this article I would like to give some insight into the character of the man who was truly the father of the "spearmint station."

Charles Thorne was born of Quaker stock and remained a Quaker throughout his life, although his family attended the College Presbyterian Church in Wooster. The Rev. George N. Luccock said of Director Thorne that "he could not have been more faithful and loyal had he been born a Presbyterian." He attended both Michigan State College and Antioch College, receiving some undergraduate training at both. He later received an honorary master's degree from The Ohio State University and an honorary doctorate from the College of Wooster.

Director Thorne first came onto the Ohio agricultural scene as foreman of the OSU farm and experiment station around 1880. He held this job for about two years. He was very unhappy with the approach to farming there and quit to take a job as editor of *Farm and Fireside Magazine* in Springfield. As editor, the opinionated young Mr. Thorne had a good platform to air his views and did so, both to the public and the university Board of Trustees, once suggesting that "doing away with the arts and philosophy departments altogether and replacing them with good courses in mechanics would improve the whole university."

His views gained a lot of support from the agricultural leadership in the state and in 1887 he was appointed as the first full-time director of the experiment station. Director Thorne was a solid, practical farmer at a time when that was needed and appreciated. He became a highly respected scientist in the areas of soil fertility and fertilizers, but it is his administrative actions that give some insight into him as a person.

The following are two "Thorne Stories" that crop up often enough to have at least started from the truth. . . .

**The Milkman:** In the early days, we had a creamery and a milk route where we sold "OAES Milk" in Wooster. The delivery man worked by the hour on the milk route. One morning he sent word that he was too ill to run the route. Since no one else was handy, Director Thorne decided to deliver the milk himself. Having finished the delivery and returned to the station, Director Thorne noted that he had completed the route 45 minutes faster than the regular delivery man. The following morning he met the delivery man at the creamery and informed him that if a man twice his age could deliver the milk 45 minutes faster, then he was cheating on his hours. Director Thorne fired him on the spot.

**The Haircut:** One day after going into town to deposit the produce receipts in the station account, Director Thorne thought it would be handy to get his hair cut while he was already there. This was certainly against station policy, but he was station director, so exceptions could be made. Upon arriving at the barber shop,



Dr. Charles E. Thorne

the director found that the man in the chair getting a hair cut was one of his greenhouse foremen. Director Thorne looked at the foreman and the foreman looked at his boss. I'm sure the foreman "knew" at this point he was unemployed. The director thought for a moment and came to an administrative decision that got both of them off the hook. Director Thorne pronounced that "since the hair had grown on state time then it was permissible to have it cut on state time."

The early days were not as stiff and sterile as the old official pictures would indicate. I checked on one small point for everyone, though: the haircut decision was later reversed. Get your hair cut on your own time.

## Mr. Goddard, Mr. Graham and the Ohio Cooperative Extension Service

**I**n 1895, with the help of Dean Thomas F. Hunt of Ohio State University, Mr. A.D. Selby, botanist with the Ohio Agricultural Experiment Station, and others, two students in the College of Agriculture started the Agricultural Students Union. These men were Mr. Charles Burkett and Mr. Franklin P. Stump. Their idea was to form an organization to get the results of

education and research from the classrooms out to the farms. They enlisted the aid of Director Thorne, who provided seeds from the experiment station for their field trials, and Dean Hunt, who approved \$50 for expenses. They organized many demonstrations and experiments over the next few years but most were

not productive because of poor record-keeping and a general lack of organization.

By 1901, the organization had attracted the interest of Mr. L.H. Goddard of Washington Court House, Ohio. Mr. Goddard had a good feel for what was needed, and in 1903 he was named "director of the division of agriculture"



of the student union. At the annual meeting of 1904, Mr. Goddard helped formulate a resolution establishing two lines of work: the experimental work would be under the direction of the experiment station, while the work in agricultural extension would be supervised by the university. That same year, Director Thorne hired Mr. Goddard to organize the Department of Cooperative Experimentation at the experiment station in Wooster. Also that year, Dean Hunt had received a letter from A.B. Graham, superintendent of schools in Springfield, Ohio. Mr. Graham was organizing youth clubs in the Springfield area. These clubs were heavily oriented toward agriculture and home economics. He was requesting any help that Dean Hunt could provide. Dean Hunt passed the letter on to Mr. Goddard and Director Thorne.

Charles Thorne had lived in Springfield when he was editor of *Farm and Fireside Magazine*, prior to being named director of the experiment station, and he knew of A.B. Graham. This resulted in Mr. Graham being asked to be a keynote speaker at the 1905 meeting of the Agricultural Students Union. His speech was so effective that within six months he was appointed as the first superintendent of extension, with a companion appointment in the Department of Rural Economics at Ohio State University.



A 4-H club band (circa 1925).

Mr. Graham's boys and girls clubs would grow into the 4-H clubs of today. Mr. Graham and Mr. Goddard would map out the Ohio State Extension Service, the delineation of which was published in "Circular 127, June 1912—Ohio Agricultural Experiment Station." All this was done years before passage of the Smith-Lever Act by the federal government to establish extension services at land-grant colleges. Their efforts would serve as a model for the state extension services. W.O. Thompson, president of The Ohio State University, drafted the original agreement linking the federal

government (USDA) and the land-grant colleges through the Cooperative Extension Service. This became the Smith-Lever Act of 1914.

Thus, an idea formulated by two undergraduate agricultural students attracted the organizational skills of two other men, the mutual support of two institutions, which combined to give birth to the Ohio Cooperative Extension Service and the 4-H program. Somehow, that's the way a good idea is supposed to work—or at least this one did back then.

## Snapshots of History

In 1892, the experiment station arrived at Wooster. In that decade of 1890-1900, the station created the Wooster test plots. Supervised by Director Thorne, these one tenth-acre plots were used for long-term study (some more than 50 years) of continuous culture, fixed and variable rotation of crops, and fertilizer, manure and soil amendment tests. These plots would rival the test plots at Rothamsted, England, in their success, thoroughness and results. The information from these experiments would raise the grain yields and farm productivity many-fold throughout the Midwest. Plant breeding, animal nutri-

tion, plant and animal diseases, and insect study were all undertaken with a commitment to scientific thoroughness and application of results to Ohio farmers. It was an interesting time in agriculture, with many discoveries and procedural improvements.

Besides their work at the station, what else would young staff people like C. Thorne, C.G. Williams, Bertha Wildman, J.S. Houser, Annie Ayers and others have read and talked about? Here are some of the events that were going on at the time:

1890: Whitecomb Judson invented the zipper.

1891: Travelers checks were invented by American Express. James Naismith, a college professor, invented basketball. (The first game was played Jan. 20, 1892.) The removable tire was invented by the French firm, Michelin. An American, Dr. Roe, performed the first plastic surgery for cosmetic reasons on the human nose.

1892: In Iowa, John Froelich built the first operational gasoline tractor. The first "contact lenses" appeared. A French architect invented reinforced concrete.



1893: The electric tea kettle was patented in Chicago. Felix Hoffman, a chemist at Bayer Labs in Germany, re-discovered aspirin and used it to treat fever. Wilhelm Maybach invented the carburetor and Karl Benz added the throttle valve; this made the gasoline engine usable.

1894: Will Keith Kellogg invented corn flakes.

1895: King Camp Gillette invented the safety razor. Wilhelm Konrad Roentgen discovered X-rays.

1896: The first classic comic strip, "The Yellow Kid," by R.F. Outcauld, appeared in the New York World.

1897: The governor of Ohio, many military bands, the president of The Ohio State University, and several

thousand people arrived in Wooster, Ohio, by train, on horseback, and on foot for the dedication of the experiment station's first major building, the Administration Building.

1898: A Swedish microbiologist, Beijerinck, repeated the work of the Russian, D. Ivanovsky, reported in 1892, demonstrating the existence of very tiny microorganisms capable of passing through porcelain filters. This was the tobacco mosaic virus disease, which Meyer had been able to transmit from plant to plant in 1886. It would be 50 years before the electron microscope would "see" the first virus particle.

1899: Henry Ford was building the first

Ford cars in Detroit. The famous Ford Model T would go into mass production on an assembly line in 1908. More than any other automobile, the Ford would replace the horse as a means of transportation.

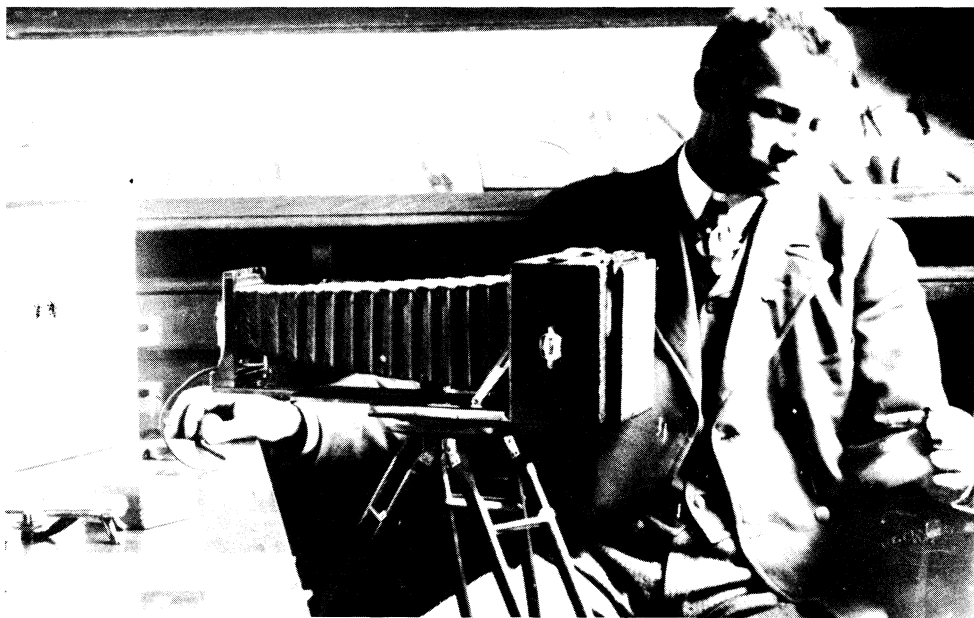
1900: Johann Waaler, a Norwegian, invented the paper clip.

It would seem that the early staff had lots of exciting news items for their lunch breaks (the coffee break was years in the future). I wonder how many times they chuckled and said, "That won't work." Director Thorne, for example, never owned nor learned to drive a car, even though he authorized the station's purchase of them for staff use.

## A Picture is Worth . . . Three Chickens, Half a Pig and a Thousand Words!

**A**gricultural scientists embraced photography as soon as the equipment became available. It was much easier to carry a picture of an experimental plot than the whole field. In the design of the Administration Building at Wooster, Director Thorne included a rather spacious photographic laboratory. It occupied nearly the whole second story of the chemical wing (or later, the business office area) of the building.

The photo studio was illuminated by skylights built into the roof. The original skylights are still visible on the outside of the north roof of the studio. The early photographers used 8- by 10-inch and 5- by 7-inch bellows cameras mounted on massive tripods. Even with the sunlight from the skylights, 1/15-second exposures were considered fast. Many exposures were one to two minutes in duration. You didn't move much if you wanted a good negative. After developing the negatives in chemicals that the Environmental Protection Agency would quarantine us for now, they were rinsed and set out to dry. The early negatives were all "glass plates." After drying, the negatives were "contact printed" onto Solio-graph print paper by exposing the negative and paper



Mr. W.H. Goodwin was an early photographer in entomology (about 1910).

to sunlight for five to 30 minutes. The photographic enlarger was not common at that time, so if you wanted a bigger picture you used a bigger negative.

Despite these limitations, which we might consider insurmountable, these

early craftsmen recorded some excellent images. Photographing plots of stunted, wilted corn, sick wheat and dead animals was about as rewarding then as it is now. Even though this was the bulk of their work, they managed to find occasional outlets for their artistic talents. With this article are excellent examples that combine art and science. The young lady



is illustrating the difference between “short ear” and “tall ear” corn. Clothing and hair style would indicate a 1920s

date. The two boys demonstrating corn yields were photographed in the studio. Their photo dates to 1898. The kids were

probably children of the first scientists of the station and could still be alive today, but would be in their mid-90s.



Tall ear and short ear corn, circa 1920.



Comparing corn yields. (Don't you love these little guys?)



## Dr. William Krauss and the Christmas Message

**D**r. William E. Krauss joined the research center in 1926 in the Department of Dairy Science. Through the next decade he attracted national attention and a reputation in cooperative research with the medical school at Case Western Reserve University, which led to the vitamin D additives in milk that subsequently cured the prevalent childhood disease of rickets. Bill Krauss continued his association with the center, becoming department chair of Dairy Science.

In 1948, with the appointment of Dr. Leo Rummell as dean of the College of Agriculture and director of the Agricultural Experiment Station, the directorship was transferred to The Ohio State University in Columbus. Dr. Krauss was appointed as the first associate director of the research center. He spent the next 20 years in this role at Wooster and was a strong guiding force during the period. Dr. Krauss retired in 1969 but was appointed as the first historical records officer and maintained that position until the early '80s. This amounted to nearly 60 years of continuous employment. We are indebted to him for collecting and preserving many of the records that exist today. The Krauss Dairy Center was named in his memory.

From 1948 through 1969, Dr. Krauss initiated the "Christmas Message" from the experiment station. This was given to the staff and was also broadcast over the local radio station. He touched on many issues of the day in each message, and they are an invaluable diary of the feelings and happenings during those years. What follows are some of those thoughts that have been abstracted from earlier Christmas messages from Dr. Krauss:

1948: The station has been privileged to have the faithful and loyal service of hundreds of individuals who have spent most or all of their working years in the station's employ.

1949: No one has been exempt from serious problems, no nation, state, institution or person. If we have met these problems squarely and have attempted to solve them honestly by using our best talents and with the welfare of all in mind, then truly we can enter the Christmas season with a spirit of reverent celebration.

1952: A few evenings ago, I saw on the TV screen the explosion of the atomic bomb. What a grim reminder of the antithesis of the Christmas message.

1961: The world is greatly troubled and



**Dr. William Krauss was the first associate director of OARDC, serving from 1948 to 1969.**

it need not be if the true spirit of Christmas prevailed. We should not need to be worried about fallout shelters, or the color of skin, or who is the first to reach the moon.

1966: We in the research center family are proud to be part of a program built around meeting the basic needs of people: food, shelter, clothing and improved patterns of living.

1969: Let us, then, do our part in remembering, sharing and building the real spirit of Christmas into whatever we do.

## Agriculture Takes to the Air — The First Crop Duster

**S**ometime in 1920, C.R. Neillie of the Cleveland Parks Department contacted the experiment station with an interesting idea. Mr. Neillie had become frustrated trying to spray tall trees and remote areas of Cleveland parks to combat insect infestations. He wanted to know if the station could devise some way to drop "insect poison" from a balloon, dirigible or one of the other new flying machines. J.S. Houser of the Department of Entomology agreed to take on the project. In order to obtain an airplane and qualified pilot, an agreement was arranged between the station and the Air Services Engineering Division, U.S. War Department, McCook Field, Dayton. The pilot assigned to the

project was 1st Lt. J.A. Macready. Actual work started in the summer of 1921.

The airplane used for the test was a Curtiss J-N6 Army biplane. A sheet metal hopper was built to hold about 125 pounds of arsenate of lead obtained from the Sherwin Williams Paint Company of Cleveland. A hand crank and chain apparatus turned a rotating vane in the bottom of the hopper to push the powder out of the hopper and into the slipstream of the airplane. The hand crank was turned by a second person riding in the rear cockpit of the airplane. An initial test was made in late July 1921 using lime. The

test was run over the landing field at Dayton. The lime produced a cloud of dust that settled to the ground, but the crank proved hard to operate. This was corrected by reducing the size of the rotary vane by one-half. More tests were being considered, when an actual opportunity to do this for real came up unexpectedly. H.B. Carver of nearby Troy, Ohio, had a six-acre catalpa tree grove that was about to be defoliated for the second time that year by the catalpa sphinx caterpillar. Mr. Carver asked if they would be willing to try out their ideas on his woodlot. It was either that or a lot of dead catalpa trees! So based on one test that showed the hopper worked and the plane didn't crash over a level landing





field, J.A. Macready and J.S. Houser agreed to try.

At 3 p.m. on August 3, 1921, all was ready. Lt. Macready had made a careful ground inspection of the woodlot. Houser commented that “although the ground inspection seems to be of considerable value to the aviators, it may not be essential.” A Lt. Kelly and a Capt. A.W. Stevens were standing by in a DeHaviland airplane to take aerial photos of the trial. The hopper was loaded with 135 pounds of arsenate of lead. Lt. Macready commented later that this caused the plane to pull to the right, but not too badly. A Mr. Dormoy climbed aboard to operate the hopper crank, and they were off. Mr. Houser and crew were in the middle of the grove of trees to observe if any of the insect poison settled onto the trees.

Now folks, pilot Macready was no wimp when it came to flying. He circled the grove a couple of times and then banked around to the windward side of the trees from about a mile away. Lt. Macready opened the throttle on the Curtiss and brought the plane by the grove at 80 miles per hour, 25 feet off the ground, while Mr. Dormoy cranked away. The 80-mph slipstream combined with the prop wash made a wonderful cloud of dust that settled gently over the trees. As Lt. Macready banked the plane around and upward he noted two things. The first pass had taken nine seconds, and it must have been successful as he could see Mr. Houser and his crew “fleeing for their very lives out the far side of the grove to escape the cloud of poison.” Five more times Lt. Macready brought the plane across the grove at tree-top height while they emptied the hopper. The total dusting time was 54 seconds, immediately establishing a world record for speed of insecticide application on forest areas.

The results were astounding and far exceeded everyone’s wildest expectations. Forty-eight hours later, Mr. Houser recorded these comments during his inspection of the grove: “Hanging on the trees, foliage, fence posts and weeds, and lying on the forest floor were millions of dead and dying caterpillars. Less than 1

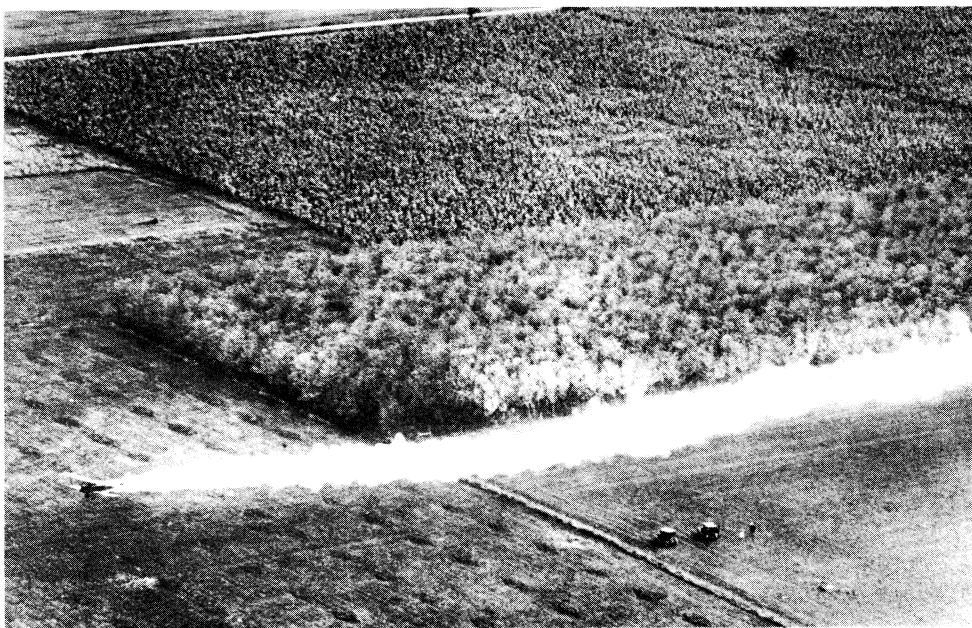
percent of the caterpillars remained alive. As an entomologist I was both repulsed by the destruction and elated by the success of the experiment.”

Word of the experiment took the nation by storm and “airplane dusting” became famous nearly overnight. Mr. Houser gave talks at national meetings

that winter, and in March 1922 the experiment was written up in the prestigious *National Geographic*, with worldwide circulation. Almost lost to history is the name of the first crop duster, J.A. Macready, and the entomologist who made it possible, J.S. Houser of the Ohio Agricultural Experiment Station, Wooster, Ohio.



The Curtiss J-N6 biplane used in the first “airplane dusting” test.



The biplane’s second pass over the catalpa woodlot in Troy, Ohio.



## The Firestone Gardens — One Couple's Hobby

**F**rom around 1920 until the late 1950s, located just west of Thorne Hall and Madison Avenue were the Firestone Gardens. The gardens were rather formal, and circular much like Stonehenge. They were large, covering more than an acre. There was no foundation involved or memorial; they simply were created as a hobby by Frank T. and Mabel Firestone who owned the property until the mid-1920s. Pictures indicate that Frank and Mabel probably grew their own stock in a little nursery behind the barn on their property. In 1925 the research center bought the property from the Firestones with the agreement that the station would maintain the gardens for five years. We actually kept them for 30-some years.

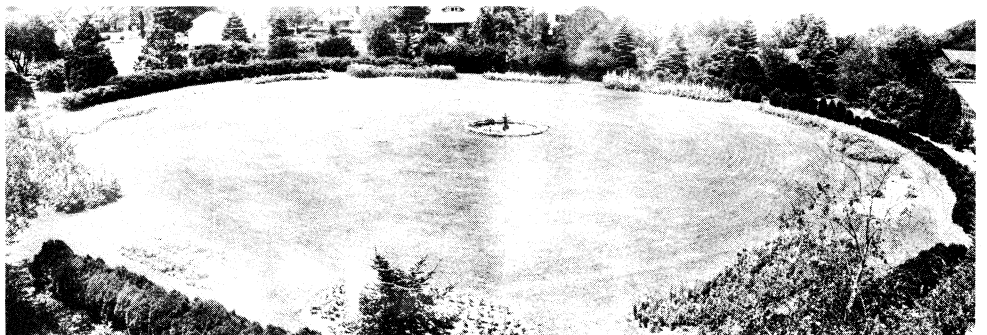
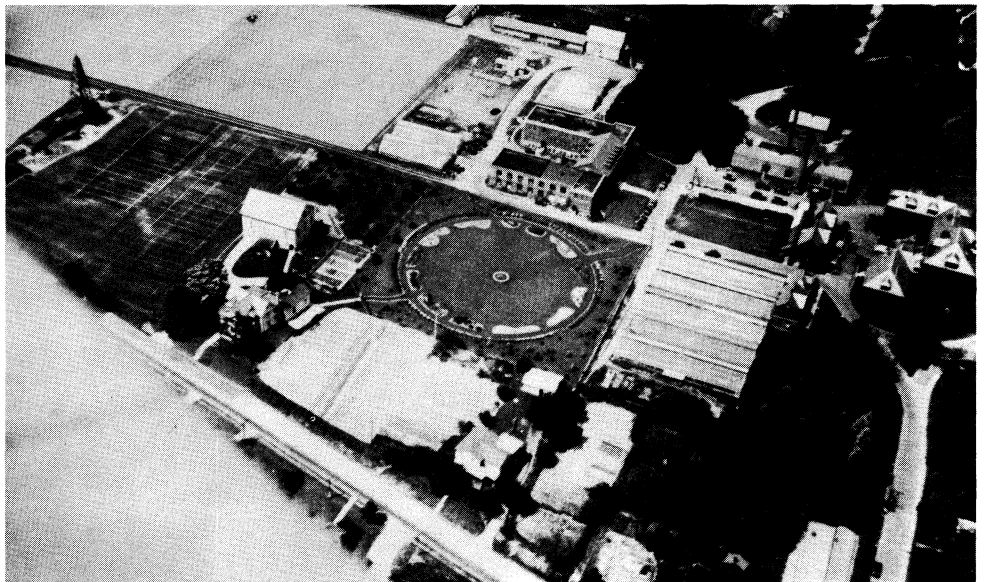
Only a few plants remain now. The large taxus near the corner of Thorne Hall was probably part of the original gardens. Photographs record the life cycle of the gardens, from the initial plantings to maturity. There are still several employees and retirees who remember the Firestone Gardens, but no one seems to remember why we decided to eliminate them. Upkeep probably played an important factor in the decision.

An aerial view around 1925 shows the location of the gardens. Thorne Hall is in the center of the picture with the Administration Building in the far left. The working oil well, far right, was located about where the Research Services Building now stands.

An early panorama, circa 1930s, shows mature gardens with a large expanse of grass surrounded by flower beds and then a ring of evergreen shrubs and trees. The center piece is a small pond and bird bath.



A view from the tower, circa 1920, showing the original planting of the Firestone Gardens. The Firestone house and barn are shown along with our greenhouses.





## Somebody Had to Keep It Running!

**S**team boilers, the catacombs (steam tunnels) and the people who kept them all going marked the beginning of our present-day maintenance department. One of the first installations on campus in 1893 was a steam boiler to heat the first building (the present LPCAT facility) and the associated greenhouses. Underneath the original building, nearly 30 feet below ground level, is the boiler room and an adjacent steamfitters room to maintain the pumps and boilers. The original boiler and tall brick smoke stack are gone now, although the stonework and brick that supported them are still there. The steamfitters shop remains, intact, and its racks still hold a large number of heavy cast iron pipes and fittings. These are still used occasionally to maintain some of the original systems still in use.

Since the boiler operators had the tools and expertise of general mechanics, they were often called on by Director Thorne

to perform general service on much of the station's equipment. Even in the early days, binders broke chains and sprockets, shaft bearings in the belt-driven equipment in the creamery overheated and wore out, the director's fireplace started smoking due to a soot-filled flue, and new lab equipment (usually involving gas burners) had to be installed.

The station expanded rapidly between 1892 and 1920. The purchase of automobiles brought into the picture a whole new set of problems all together. The first people hired were carpenters. The original carpentry shop was located to the rear of the first powerhouse. We also had modernized with the installation of electric lights, "telephonic" connections between buildings and "U.S. long distance" telephone systems in Wooster. The first electricity on campus was produced by our own generator. The generator was located in the steamfitters shop and was driven by a steam engine.

It produced 110-volt direct current. An early open-bucket centrifuge, that is displayed in the OARDC museum, is fitted with a 110-volt DC motor. As "city power" became available, we took advantage of it and then ran both DC and AC systems for a long time (into the 1940s). It took a lot of thought to remember which things needed which power source. Mistakes kept the electrical shop busy.

The age of the specialist was upon us—we now had people trained in electrical wiring, carpentry and plumbing. The boiler operators thankfully went back to keeping steam up in the power plant, located at that time beside the original building where a tree island and parking (west side) now exist. The boiler operators ultimately would be further divided into operators (licensed) and heating ventilation maintenance crews.

For a short time in the 1920s, the station had its automobiles repaired at garages downtown. The prices were interesting, at least by our standards today. A repair bill on a Model T Ford listed "installation of a new front fender, bumper and headlight lens. Also adjust the timing and tune the engine." Total bill — \$12.50.

In 1955, construction was started on the current maintenance complex. Additional construction over the years resulted in the fine area that we have today. Director Thorne could not have imagined the amount of work or the degree of expertise and sophistication that currently goes into keeping this campus running today. However I'm certain that if he would visit us now, he would be very proud of the condition of his station.



The Powerhouse—the view from the tower, circa 1925. The corner of Thorne Hall is in the upper-right corner of the photo.



## Field Tests Are a Continuous Thread

**F**ield testing of agronomic crops for yield, disease and growth characteristics under different nutrient, tillage and soil conditions (often called “plot work” by the staff) has been a continuous part of the station for more than 100 years. Director Thorne created the Wooster test plots in 1893. Some

remained under continuous study for 60 years. These plots rivaled the great test plots of Rothamsted, England. Results from these plots changed farming practices throughout the Midwest. Untold thousands of varieties of crop plants have been tested under an infinite number of field, nutrient and disease combinations.

All the data from these tests have been collected, summarized and passed along to the agricultural community. These rotation and fertilizer plots demonstrated that corn yields could be increased from 45 bushels per acre to 120 bushels per acre and wheat from 9 bushels per acre to 70 bushels per acre with good farming practices.

This is difficult, painstaking work. Much of it is still done by hand to ensure accuracy and to afford the scientists the human observation that machines cannot perform. In the case of the wheat tests shown here, the plots were planted and harvested by hand. The wheat was measured for yield and growth characteristics, then ground into flour. The resulting breads were evaluated as a final testament to the usefulness of that variety.

Plot work goes on today (as a lot of you are painfully aware by the last of June) and has become much more complex than it was in the beginning. When controls, replicates and experiments are mixed in the same plot locations, and then the experiments are replicated in several areas of the state, the total number of plots may exceed 2,000 for some experiments. It just seems that if you want to know what really happens out there, you have to try it in the field.



Planting 1/10-acre plots by hand.



Hand harvesting of wheat plots.





## The Director's Residence

**B**uilt in 1894 on the corner of Secrest and Madison Hill roads, the director's residence was a study in 1890's post-Victorian living. Constructed to Director Thorne's specifications, the home reflects the style and sturdy character of homes of that era.

Sometime, probably for the dedication of the Administration Building in 1897, the interior of the home was photographed for the occasion and fortunately a few of these pictures have survived in restorable condition. The photographs showing details of the interior furnishings, illustrate the style and manner in which Director Thorne and his peer group lived at the turn of the century.

I will not attempt to describe the building or the room shown here in the pictures but rather allow readers to search out those details that are important to them. The wonderful thing about these photos in that unlike many restored homes, these shots are not the result of careful research and the interpretation of collective wisdom but rather the actual items as captured by the lens of the camera.

The director's residence is still standing where it was constructed. The exterior remains virtually unchanged from the day it was built. The inside has been renovated and changed over the years as various families associated with the center lived there. It is a fine example of 1890-style construction as interpreted and executed by Ohio builders and designers. It remains as part of the center and long history of this institution.



The exterior of the director's residence, located on the east corner of Secrest Road and Madison Avenue, is unchanged since its construction in 1894.



The Dining Room. The plank bottom chairs, ornate china cupboard and gas lights help illustrate the details of formal dining at the turn of the century.





## The Ladies' Clubs

### Viola Thorne Club

**T**he Viola Thorne Club was the first club organized on the experiment station campus. It is a social club composed of wives of men who are employed at the OARDC. It is named for Viola Hine Thorne, the wife of Charles Thorne, the first full-time director of the Ohio Agricultural Experiment Station. As the director's wife, Mrs. Thorne felt that it was her duty to pay a social visit to the home of new staff members upon their arrival in Wooster. During the rapid expansion of the center that occurred during the first decade of this century, this became a major responsibility.

In February 1914, the club was begun by ladies of the station in order to help Mrs. Thorne make the wives and families of new staff members feel welcome to the experiment station. The early meetings were family affairs with the women taking their children with them for afternoon teas and entertainment. Mrs. Phoebe Houser Hunt, daughter of entomologist J.S. Houser, remembers attending many of these functions as a child with her mother. The oldest living member of the Viola Thorne Club is Mrs. Charles Hunt who is now 105 years old. At the age of 103, Mrs. Hunt dictated some remembrances of the Viola Thorne Club to Phoebe H. Hunt:

"I had first come to Wooster (1920) from the state of Washington. It was the first year when women could vote in the state of Ohio. Elections were the topic of conversations at that meeting. Older members of the club wanted to know how one decided whom to vote for. They were shocked when I told them that they could vote for individuals they felt could do the job best. Many thought that you

could only vote for the party not the person."

Mrs. Hunt also remembers fun times that were not so weighty as politics:

"Another special occasion was the time when Lucille Patton would do bird calls with an open mouth — Mary Lou Patton sang a daring song *Lullaby of Broadway* and one of the kids, Phoebe Houser, won the prize that night for blowing the first bubble from a stick of bubble gum which was a brand new thing at that time."

The main purpose of the Viola Thorne Club is to bring members together to become better acquainted and to share thoughts and ideas with one another. The club also organizes and assists at research center functions such as the Employee Appreciation Dinner, Family Christmas Sing, winter social, family picnic and other events. In her memory, Dr. Thorne presented the club with a gavel made from Mrs. Thorne's rolling pin. This gavel is still used today to start and adjourn club meetings.

As a part of the Centennial Celebration, the Viola Thorne Club purchased a bench to be placed in the Secrest Arboretum.

### The Women's Club

(Formerly the OARDC Girls' Club)

The OARDC Girls' Club was formed in 1926 as an organization for women employees of the experiment station. The Women's Club has given the women employees a forum from which to discuss work related issues and in-service training on job issues. Three-time Women's Club president, Mrs. Audrey Buchwalter, in reviewing activities during its 50th



**Viola H. Thorne, wife of Director Charles E. Thorne (circa 1894).**

anniversary, noted that the club's programs have been rich and varied with travelogues given by faculty and community members. In addition, members have enjoyed a wide variety of programming from style shows and yoga lessons to programs on flower arranging, will making, drug abuse, palm reading and much more.

The Women's Club has also been active in community projects including the Red Cross, Apple Creek State Institute, the Christian Children's Fund, Wooster Area "Give-A-Christmas," the Human Services Center and fund raising for families victimized by fire or illness.

The OARDC Women's Club continues to provide a rich and worthwhile activity and forum for the women staff employees of the research center, which greatly appreciates their involvement and their activities.



## The OARDC Library—Greenbank to Britton

**T**he need for a library to support the work of the experiment station staff was an expressed concern of the first director. Early collections of reference materials were stored in the director's office and in the laboratories and offices of the staff. The annual report of 1888 reported that \$214.58 was spent on library materials; however, even in those days the scientists had to purchase needed materials personally.

The first separate library was planned for the Administration Building which was built in 1897. Until 1928, the library occupied a room next to the Director's Office on the first floor. The librarian often assumed additional responsibilities as proofreader and editor, receptionist, and mailperson, so that proximity to the director was desirable. However, as the collection outgrew the original space, shelving was added on the second floor of the auditorium. In 1928, the library moved to two rooms on the second floor, over the Director's Office. It consisted of an office, reading room and stacks. Limited space plus increased needs of the scientists meant that over the years departmental collections grew outside the central library. The management of these department collections was usually the responsibility of the departmental secretary.

In 1947 the Library Committee recommended eliminating department libraries, constructing a central library building and hiring a trained librarian. The first two recommendations were addressed with the construction of Fisher Auditorium



**The CD-ROM disc Connie Britton is holding, contains more information than Director Thorne's entire library in 1892. William Greenbank (first librarian) could never have imagined the speed of information search and retrieval this technology provides.**

rium in 1968. The central library facility was housed in the new building and the departmental libraries were merged into this central location.

The first librarian was William K. Greenbank, who served in this capacity from 1911 to 1922. The responsibility for the library was capably handled by the eleven librarians who followed Mr. Greenbank, with Helen Hahn Enlow serving the longest tenure (1948-1976). The first librarian with a professional library degree was Virgie L. Sapp (1977-1980).

Our current librarian is Constance (Connie) Britton (1981-'til sometime in the next century). Throughout its existence, the library's philosophy has been to be a provider of information, not simply a collection of books. Changing technologies have been adopted to continually improve support for the research activities of the scientific staff. The importance of the library to the research process is represented by the motto which greets library users: "Research begins not in the laboratory, but in the library."

## Public Information

### The Print Shop, the Mail Room, and a Long Lineage of Editors

**I**n 1917, William Greenbank, the first librarian published the *Guidebook*. This 70-page booklet, describing the Ohio Agricultural Experiment Station, complete with pictures, was the brainchild of the newly hired editor, L.L. Rummell (years later, he would become our fourth director). Editor Rummell set the formats for the *Monthly Bulletin* which over the years would evolve into the *Ohio Report*

and *Ohio 21*. By 1917, Director Thorne's public information machinery was in full swing. Director Thorne was a firm believer in getting the results of his station's research efforts into the hands of the people of Ohio and any other interested parties. For many years, the experiment station would send copies of

publications to anyone, free, simply for the asking.

In the beginning, Director Thorne served as editor, proof reading publications; his secretary and the librarian filled requests for information; the printer provided publication set-up and press work; and anyone with a camera submitted pictures. The public information



effort soon became the collective service we have today. The editor and staff, print shop, mail room, copy center, photography service, and the relatively new video unit work as a closely choreographed unit to produce the mountain of printed and visual information generated by the research center.

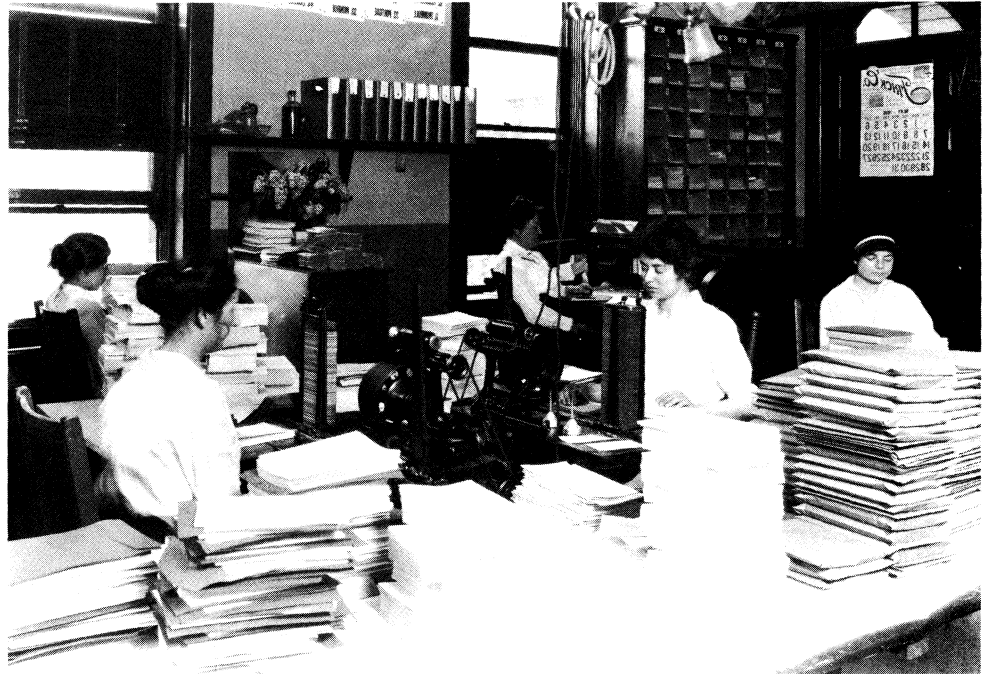
During Director Thorne's time, the printed word was the principal and often only method of communication. To give you a feel for the scope of the effort, I will quote from Mr. Greenbank's *Guidebook*.

"Two large Miehle presses print the bulletin. A smaller press and several job presses are employed for misc. work.

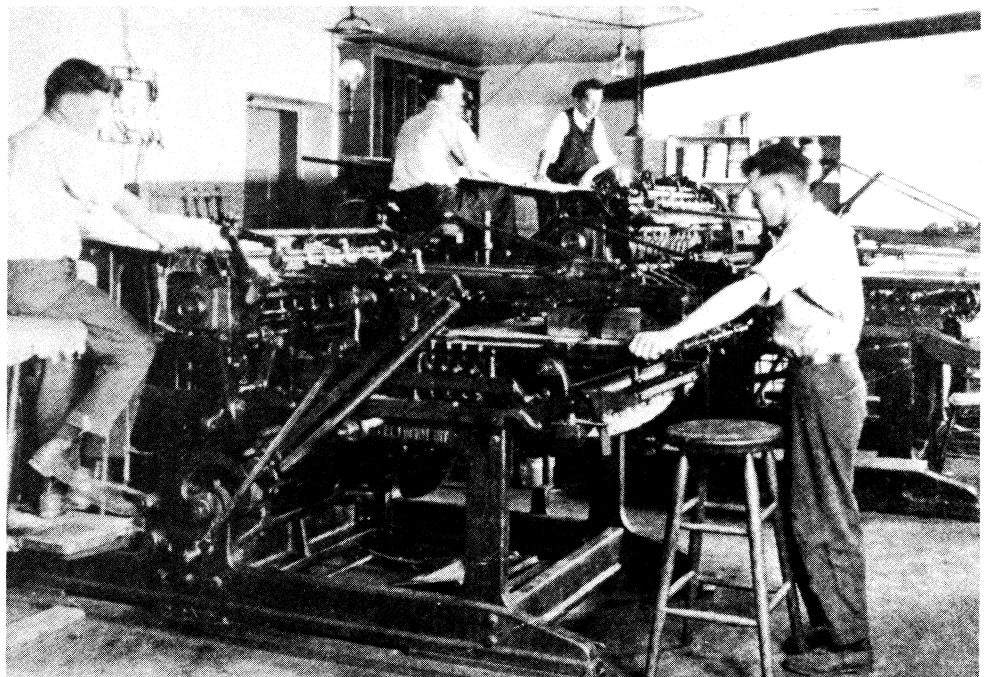
Editions of 60,000 monthly bulletins and 10,000 monographs are published.

About 75 tons of paper are used annually. Fifteen persons, including the manager, are employed in the printery and five, including the chief clerk in the mail room."

Information dissemination has always been an important and continuing part of the research center and the present staff, now referred to as "The Section of Information and Applied Communications" carries on the hard-working traditions of those before.



**The Mail Room — May 1917.** This hardworking crew included: Helen Franks Bothrn, Bessie Young Baker, Miss Dora Ellis (Chief Clerk), Mabel Oberdusky and E. Shook Morrison.



**The Press Room.** The large Miehle press is in the rear and two smaller pressed in front. The presses are all hand fed requiring at least two people for operation.



## Secrest Arboretum — A Living Herbarium

**T**he Secrest Arboretum is named for Edmund Secrest who became our third full-time director serving from 1937-1947. Edmund Secrest came to the research center in 1906 as a member of the Forestry Department. He subsequently served as a state forester and chief of the Forestry Department prior to becoming director in 1937. In 1906, Secrest started the arboretum, first called the Forest Arboretum. A few plantings were made as early as 1903 but continuous plantings have been made since 1909.

The purpose of the arboretum is three-fold:

1. to determine the species and variety of trees and shrubs that are adaptable for use in Ohio.
2. to determine species and types of tree and shrubs that could be used in the re-forestation of Ohio and/or provide possible cash crops from wood lots.



**Secrest Arboretum, located on 85 acres of rolling northeastern Ohio land, is a major research arboretum and is considered unique by many plant enthusiasts.**



3. to provide a living library or herbarium of these many trees and plantings from all the world attesting to their long-term success in Ohio. The value of these long-term plantings is sometimes hard to determine but a typical example is the extensive *Taxus* plantings that are of sudden interest in the cancer drug search. Having well documented species and

records is an invaluable resource for this type of research.

The Forest Arboretum was named Secrest Arboretum for Edmund Secrest in 1950. The arboretum area continues to attract visitors from the world over to see the plantings, particularly the rhododendrons, flowering crabapple and the rose garden.

**Edmund Secrest was the third OAES director.**

## Service Facilities — Islands of Expertise

**S**ervice facilities have been a part of the research center since its inception. The first were the maintenance units, followed by the Business Office, and Public Information including the Photography Laboratory, the Print Shop and Mailing Room. Over the years many units and areas have been added as need arose. These include the Store Room, Garage, Paint Shop and several

other areas that have been highlighted in other articles. Three service areas created over the past 20-40 years include the following.

### Research Operations

The Research Operations groups are to farming and farm machinery what the gar-

age is to the automobile. Research Operations personnel maintain and use the center's machinery in our farming operations both here and, in some cases, at our outlying research locations. If it's connected with agricultural production, these are the people who not only know how to do it, but can and will. Without their patience and expertise, the station could not engage in the research that it does.



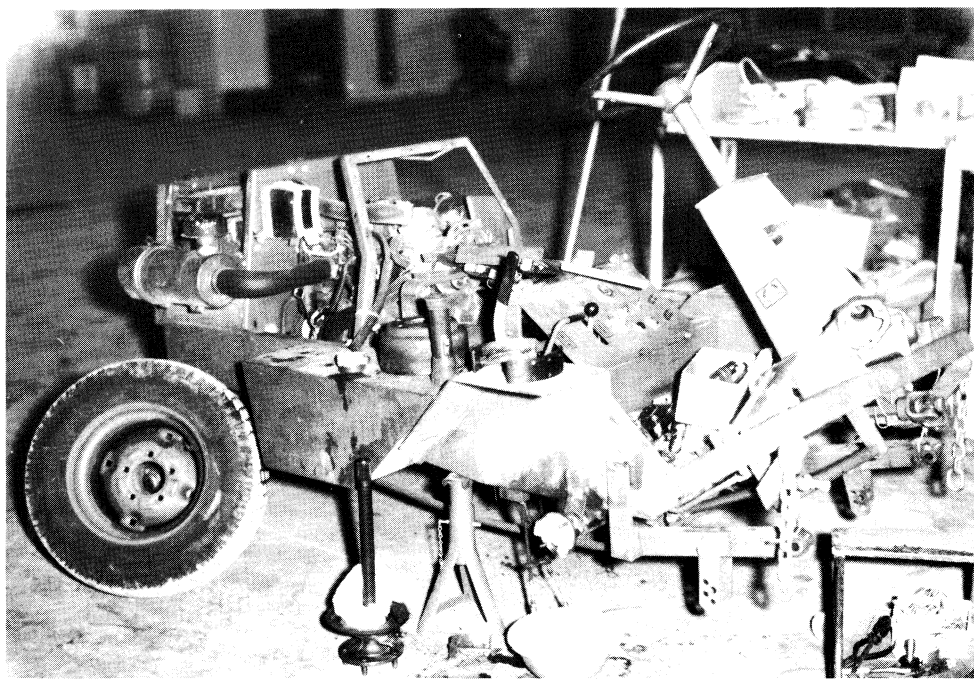


## REAL Laboratory

The Research-Extension Analytical Laboratory was established in 1976. It is a modern, rapid turn-around, chemical testing facility. Capabilities include chemical analysis of soils, plants, animal feed, manure and sewage. REAL works closely with all 88 county extension offices as well as research scientists throughout The Ohio State University.

## Electron Microscope Laboratory

Located in Selby Hall, the EM Lab was started in 1965. Over the years the scope and size of the laboratory have increased and it now houses four electron microscopes. Two transmission electron microscopes are used in the study of plant and animal tissues, plus a variety of virus diseases. Also housed in the laboratory are two scanning electron microscopes, both equipped with elemental analysis capability. The scanning microscopes allow an investigator to view the surface of a specimen at very high magnification and resolving capability, while the transmission microscopes are used to view the internal structures of a specimen. The laboratory provides electron microscope services for the College of Agriculture, plus a variety of interdisciplinary programs spanning The Ohio State University, other midwest universities and state/federal programs.



In the Research Operations shop, one of the center's lawnmowers gets a major overhaul prior to the spring mowing season.



The scanning electron microscope probes the mysteries of the insect world at 300 to 50,000 times magnification—this bronze birch bore is 300 times larger than its actual size.



## The Statistics Lab

### The Search for Numbers!

**T**he first “computer” on the station was purchased around 1897. It was a 75-pound mechanical calculating machine and was used by Ms. Bertha Wildman, the experiment station bursar.

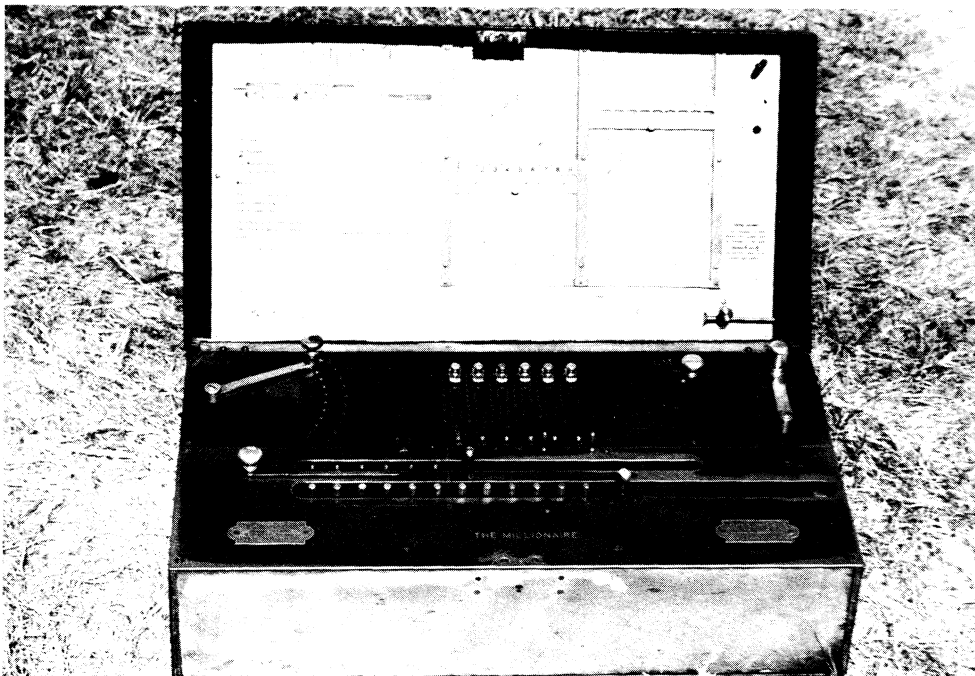
Over the years, the calculating machines grew in number and decreased in size. By the 1950s, the business offices required more and more complex computations to keep track of budgets. In addition, the scientific field of statistical analysis was rapidly evolving. The electronic computer was in its infancy.

The first “computer installation” at the research center took place in 1959. Dr. C.R. Weaver, an entomologist, was in charge. Mrs. Marietta Berkey was hired as the first employee. The initial equipment consisted of a key punch machine and a 407 tabulator accounting machine. Tabulations were sent to The Ohio State University in Columbus for verification after each run.

In 1960 a second employee, Mrs. Shirley Raymond, was hired. An IBM 1620 computer was purchased and installed in the basement of the Administration Building in 1962-63. The computer had only 32K of memory and all the programming had to be re-loaded

each morning. The computer facility was relocated in 1968 to the Fisher Auditorium building with up-grades in equipment and capability. The computer lab moved again in 1987 to its current location in the Research Services Building. The laboratory is a modern

campus-wide network offering many services undreamed of in 1958. The facility is connected to world-wide networks and performs services in fractions of seconds that would have taken Ms. Wildman and the first “computer” several weeks to accomplish, if at all.



The experiment station's first mechanical calculating machine (1897). It was called the “millionaire.”

## The Branches — Farms All Over Ohio

**I**t was obvious from the beginning that all the farming problems in Ohio could not be addressed from a single location. The diversity of soil types and climate necessitated different locations for many types of research or crops.

In 1892, Director Thorne established the first branch location in Fulton County, Ohio. By 1917, 10 county experiment farms and two state forests were assigned to the research station. All in all, that amounted to 4,237 acres under the station's management.

This has continued to the present day and the map on the next page shows the current branch locations throughout the state.



The Belmont County Experimental Farm — a field day in 1916.



## The State is Our Campus

Ohio's major soil types and climatic conditions are represented at the research center's 15 locations.

Research is conducted in 14 departments and program areas on approximately 7,500 acres at Center headquarters in Wooster, the various branches, Pomerene Forest Laboratory, North Appalachian Experimental Watershed, Piketon Research and Extension Center, and The Ohio State University main campus in Columbus.

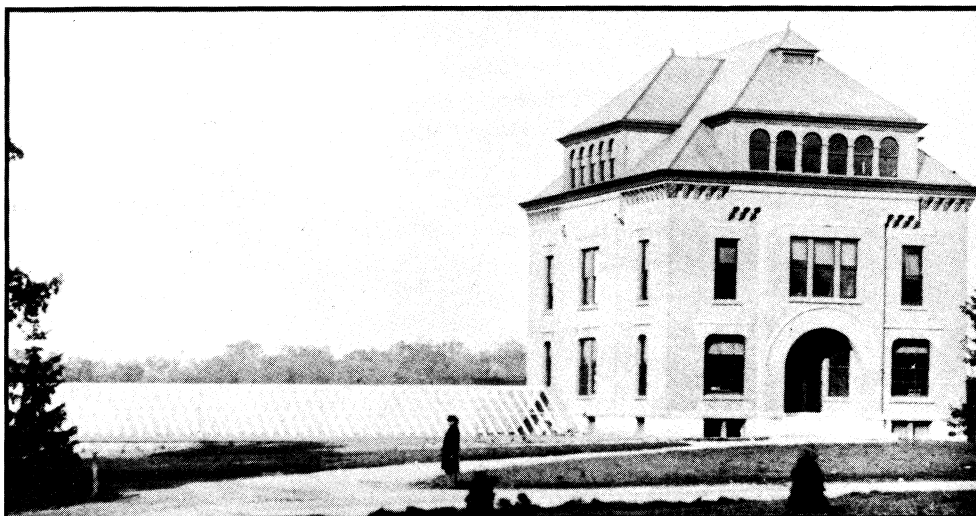
- **Center Headquarters**, Wooster, Wayne County: 1,995 acres.
- **Eastern Ohio Resource Development Center**, Caldwell, Noble County: 2,093 acres.
- **Grape Research Branch**, Kingville, Ashtabula county: 30 acres.
- **Jackson Branch**, Jackson, Jackson County: 502 acres.
- **Mahoning Experimental and Educational Farm**, Canfield, Mahoning County: 275 acres.
- **Muck Crops Branch**, Willard, Huron County: 15 acres.
- **North Appalachian Experimental Watershed**, Coshocton, Coshocton County: 1,047 acres.
- **Northwestern Branch**, Hoytville, Wood County: 247 acres.
- **Overlook Farm**, Carroll, Fairfield County: 121 acres.
- **Piketon Research and Extension Center**, Piketon, Pike County: 293 acres.



- **Pomerene Forest Laboratory**, Coshocton, Coshocton County: 227 acres.
- **Southern Branch**, Ripley, Brown County: 275 acres.
- **Vegetable Crops Branch**, Fremont, Sandusky County: 125 acres.
- **Western Branch**, South Charleston, Clark County: 428 acres.



## OARDC Buildings

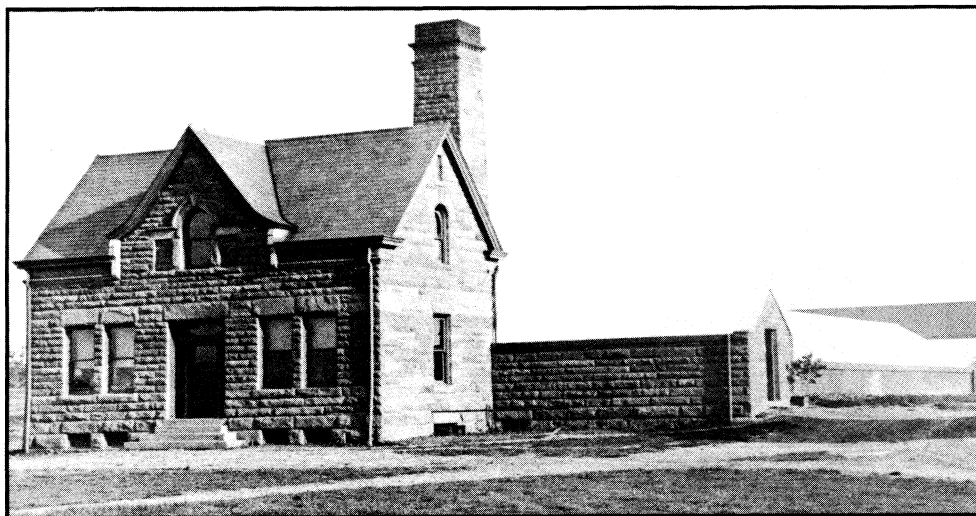


1888

*The first OAES building was located on the Columbus campus of The Ohio State University near the present site of Townsend Hall. The station occupied it until 1892 when the research center was moved to Wooster.*

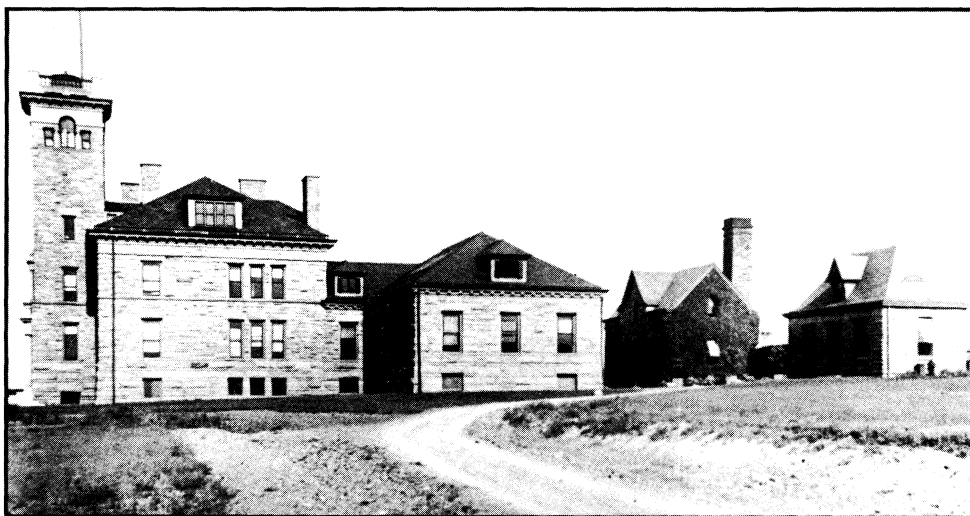
1893 & 1903

*The first Wooster building and its addition now house the LPCAT facility. This building is the oldest continuously occupied research facility on campus.*



1894

*OAES Dairy Barn. This facility was removed in 1964 and Gerlaugh Hall was constructed on the site.*

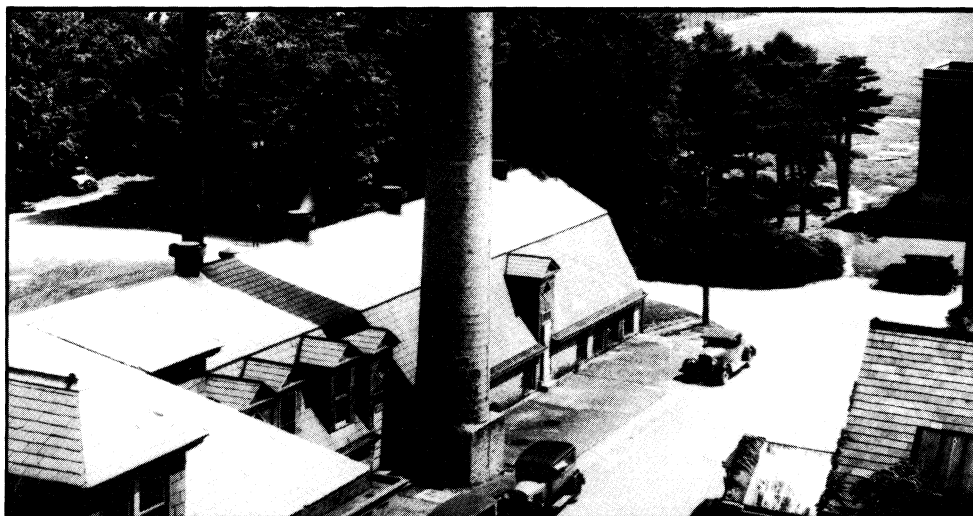
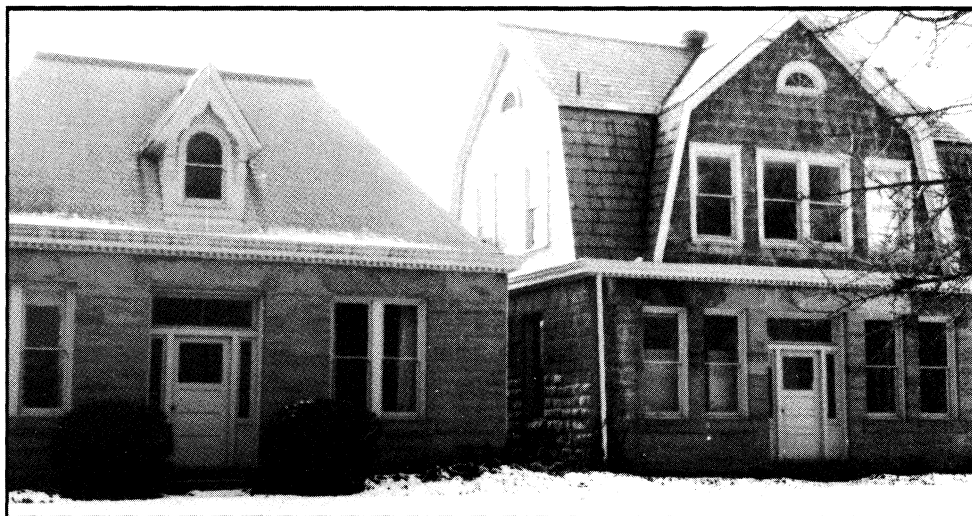


*1895-97 & 1913*

*The Administration Building. While it once held all of the departments on the station, the building now houses various offices, the OARDC Museum and a number of Ohio Cooperative Extension Service offices. The east wing was added in 1913 to complete the present structure.*

*1898*

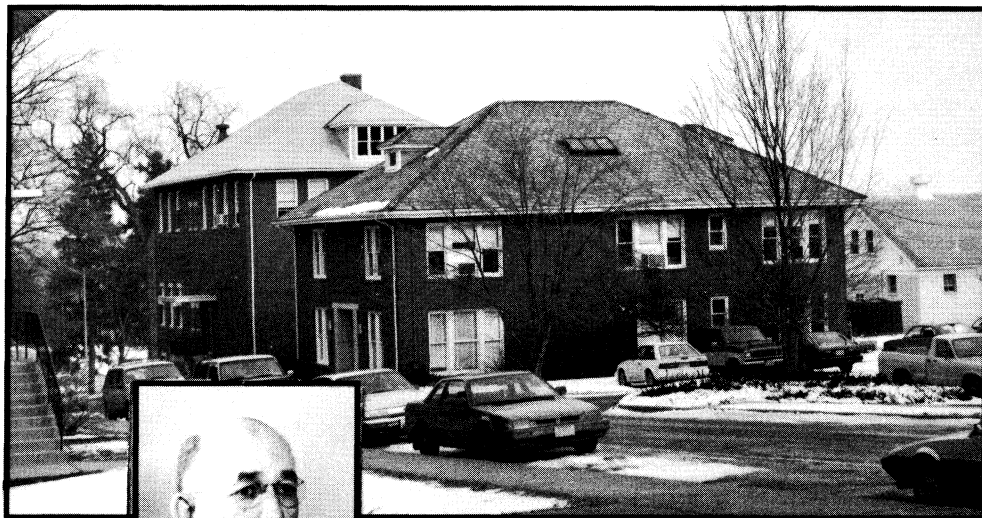
*The Biology Building (Pathologium) (left) 1910 The Entomology Building (right) These buildings were the first expansion of departments outside the main building and functioned as special-purpose laboratories. The Biology Building is now the historical archives and the Entomology Building serves the attached greenhouses as a headhouse.*



*1909*

*The original Powerhouse. It was destroyed in 1949 after the construction of the present Powerhouse on Secrest Road.*



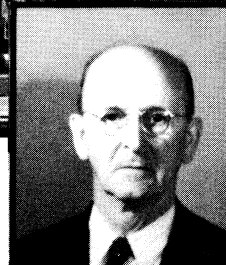
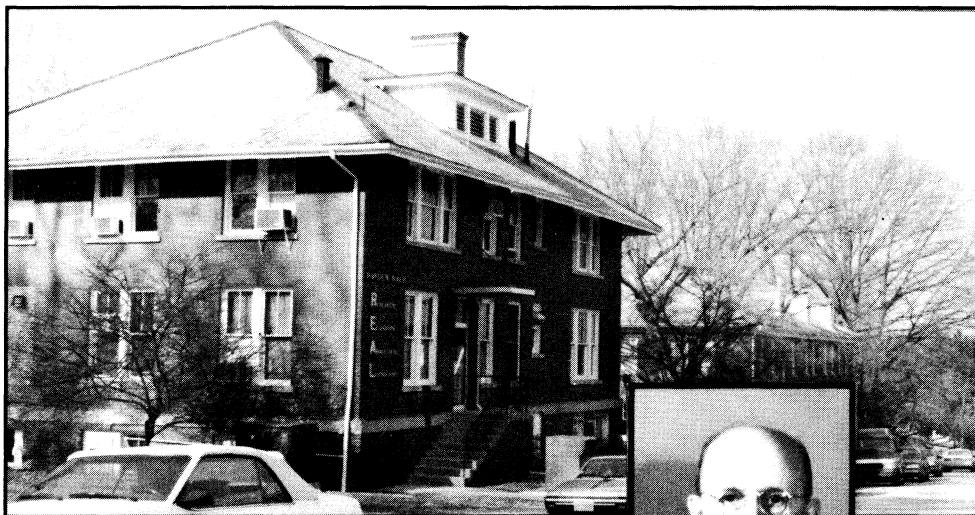


1910

*Abattoir or slaughter house. This building houses the current Japanese Beetle Laboratory and offices.*

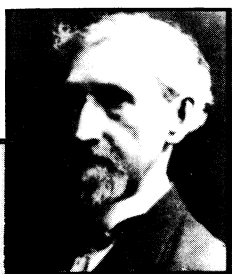
1920

*Edgington Hall. Originally the Animal Husbandry Building, it has also served in many capacities over the years. It was named for B.D. Edgington, first chief of the Animal Husbandry Department, OAES.*



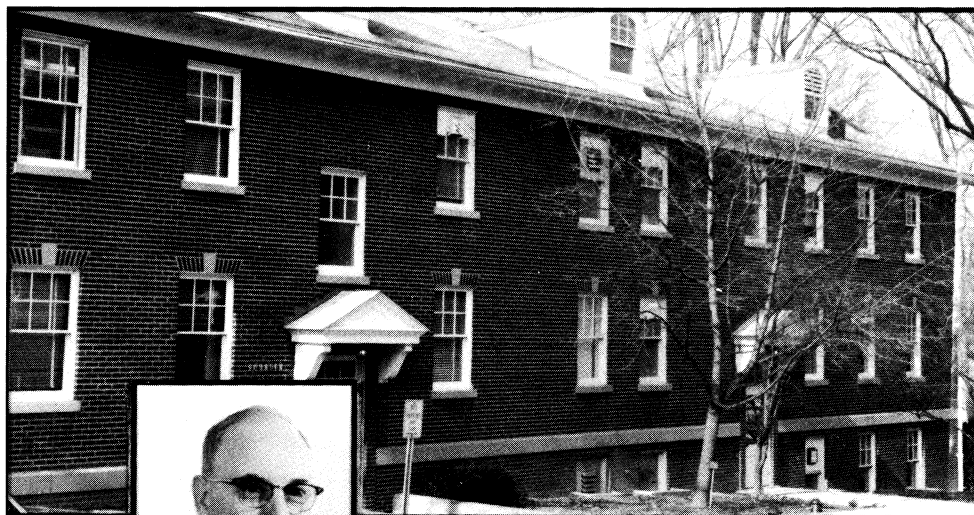
1913

*Hayden Hall. Originally the Dairy Building, it was later named for Dr. C.C. Hayden, first chief of the Dairy Department, OAES. It currently houses the Research-Extension Analytical Laboratory (REAL).*



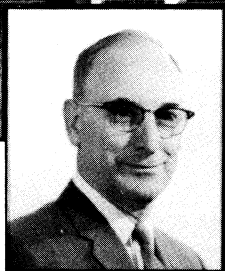
1923

*Thorne Hall. Constructed in 1923, with later additions, the building is named for the first full-time director, Charles Embree Thorne. It now houses the Entomology Department.*



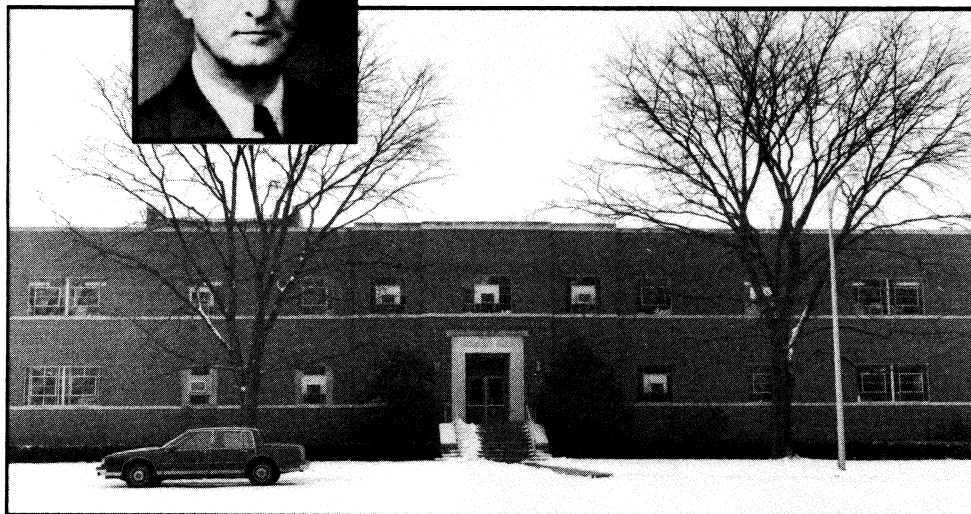
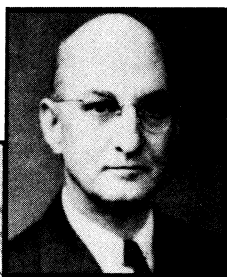
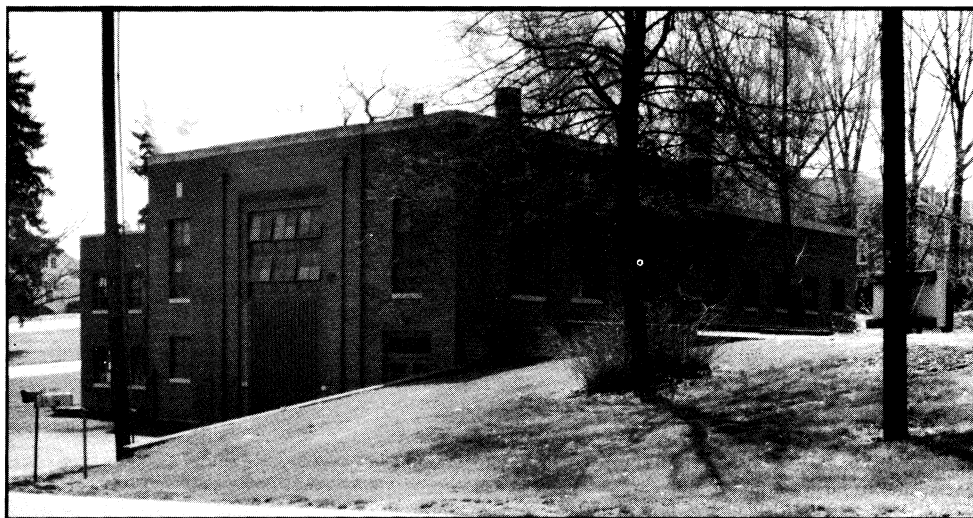
1928

*Pouden Hall. Named for W.E. Pouden, chairman of Veterinary Science from 1955-67.*



1948

*Powerhouse. It provides steam for all buildings on campus.*



1950

*Gourley Hall. Named for Dr. J.H. Gourley, chairman of the Horticulture Department from 1921-46. The building still houses the Department of Horticulture.*

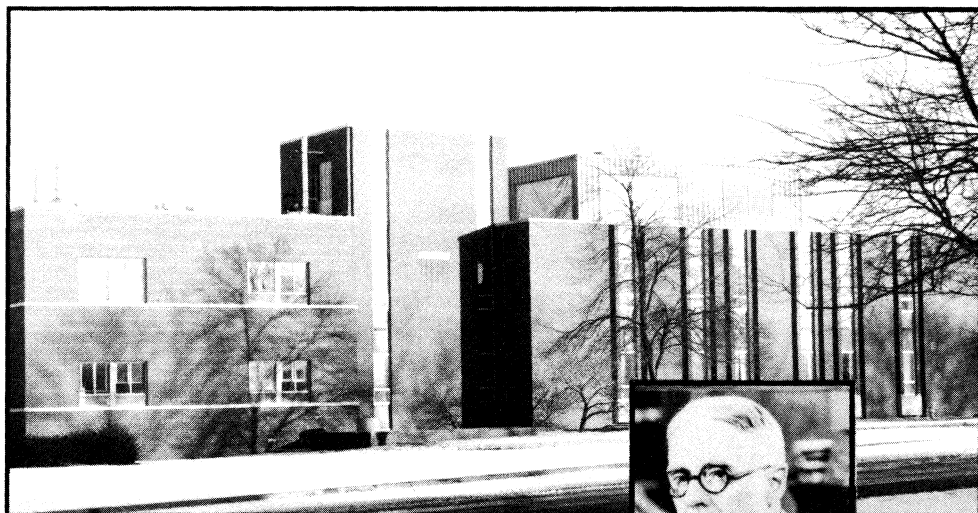


1955

*The Maintenance Building. Initially constructed in 1955 with later additions, this complex houses the campus maintenance and repair facilities for the entire campus.*

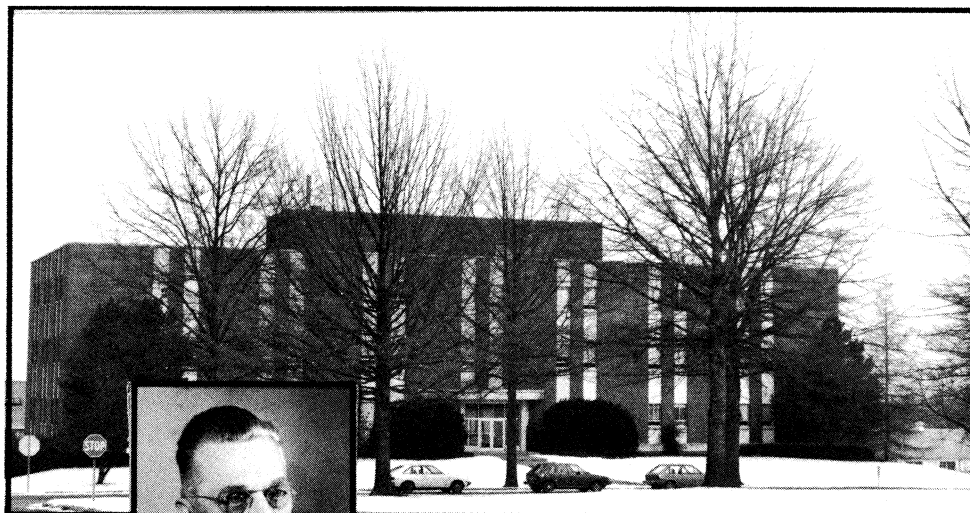
1957

*Williams Hall. Named for Dr. C.G. Williams, the second director of OAES from 1921-37. An addition was completed in 1967 giving the building its present form. It houses agronomy, natural resources and the USDA Wheat Laboratory.*



1958

*Agricultural Engineering. Offices and laboratories for both OARDC and USDA agricultural engineers.*

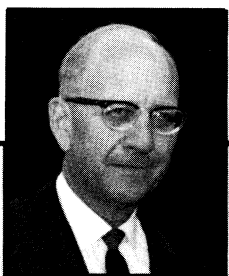


1966

*Gerlaugh Hall. Names for Dr. Paul Gerlaugh, former chairman of the Animal Science Department. This building houses the animal, poultry and dairy science departments.*

1966

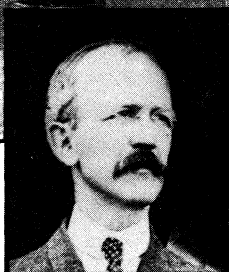
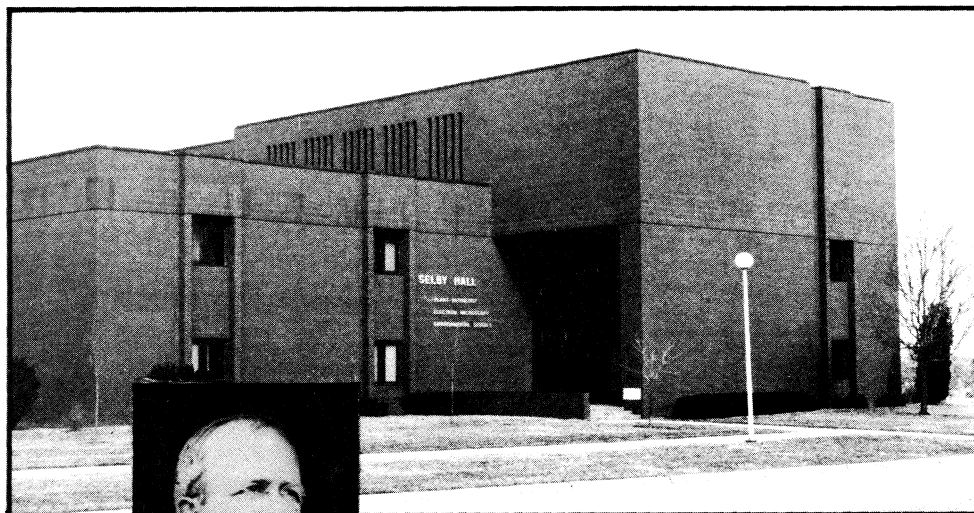
*Research Operations Facility. Storage and servicing of farm equipment and supplies.*



1968

*Fisher Auditorium. A 1,000-seat auditorium and the OARDC Library. This building was named in honor of Mr. Ralph Fisher of Wooster, who served in the Ohio General Assembly for 11 terms.*





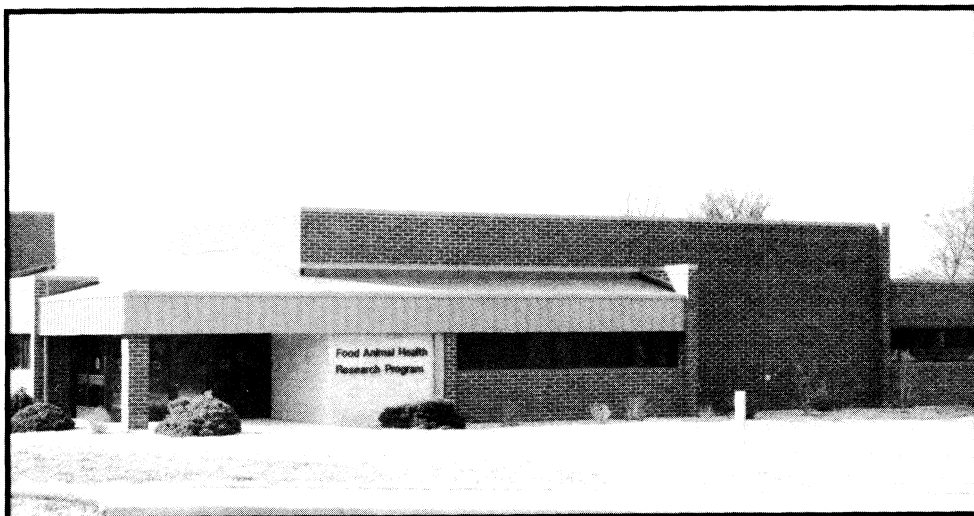
1972

*Selby Hall. Named for Augustine Selby, head of the Botany Department from 1906-23. The building houses the Plant Pathology Department, the Laboratory for Environmental Studies and the OARDC Electron Microscope Laboratory.*



1987

*Research Services Building. This structure houses the Visitor Center, Statistics Laboratory, Administration, Business Office and the Section of Information and Applied Communications.*



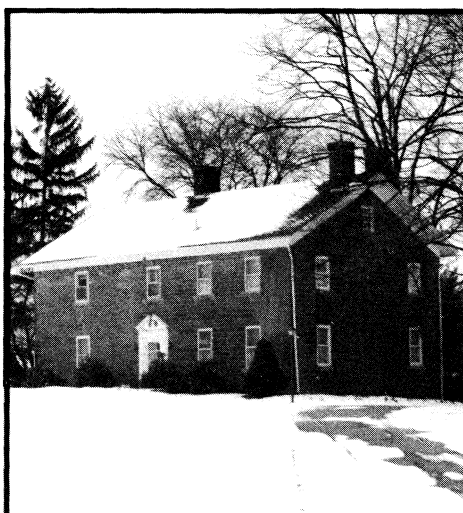
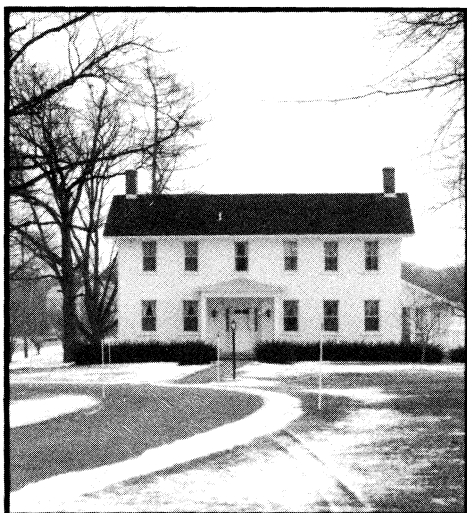
1988

*Food Animal Health Research Program Building. This structure provides laboratory and office space for the Food Animal Health Research Program unit, formerly the Veterinary Science Department.*





Other structures and areas of interest include —



1822

*The Simon Rice House (Rice House)*

*The Barnhart Rice House (Stone House)*

*These houses were built by the Rice brothers who originally created the farms which now comprise the main campus of the research center.*

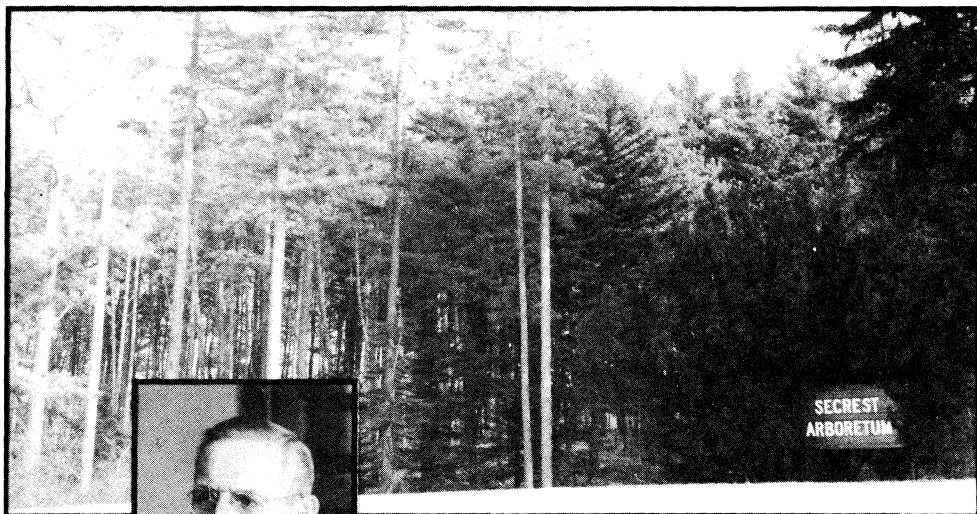
1894

*Director's Residence.*



1978

*Krauss Dairy Center. Located off the main campus, the highly computerized dairy facility offers dairy scientists a working laboratory for the study of milk production and dairy research.*

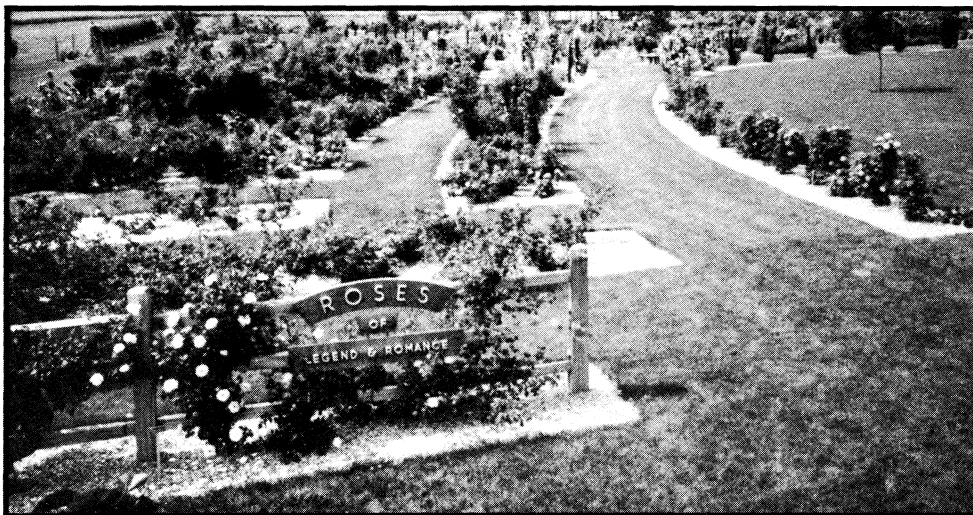


1903

*Secrest Arboretum. Named for Edmund Secrest, the third director of the OARDC, it houses a tremendous variety of plantings and evaluation plots, some dating back to 1903. The rhododendron display and the flowering crabapples draw visitors from across the state during the spring and summer.*

1970

*Garden of Roses of Legend and Romance. This rose garden features more than 500 varieties of roses. Mrs. Samuel Forbes of Cleveland donated the funding for its creation and the roses were a gift of Mr. Joseph Kern of Cleveland, a well-known rose nurseryman. The rose garden blooms from early May until the fall frost.*





# OARDC Directors and Associate Directors

## Directors



Charles E. Thorne  
1887-1921



Carlos G. Williams  
1921-37



Edmund Secrest  
1937-48



Leo L. Rummell  
1948-60



Roy M. Kottman  
1960-82



Clive W. Donoho, Jr.  
1983-84



Frederick E. Hutchinson  
1985-87



Kirklyn M. Kerr  
1987-91



## Associate Directors



William E. Krauss  
1948-69



James M. Beattie  
1969-73



Clive W. Donoho, Jr.  
1973-82



H. Russell Conrad  
1986-89



James H. Brown  
1990-Present





## A Century of Science

The following few pages provide a brief glimpse into the multitude of questions that have been addressed by Ohio Agricultural Experiment Station (OAES) and Ohio Agricultural Research and Development Center (OARDC) scientists over the past 110-plus years. Some were landmark discoveries, others were quickly superseded by new advances and technology; however, all contributed to the knowledge-base of agricultural research.

A complete listing and description of the research output of the OAES and OARDC would fill a library. This listing is provided as the appetizer, not the entire meal.

### 1890

The experiment station tested and offered for sale wheat varieties at \$1.40 per bushel. The top-producing varieties were Reliable and Valley, averaging 36.16 bushel per acre.

### 1892

Outlying experimental farms were established to facilitate research in the diverse Ohio soil types, climate, and prevailing crops. The number of county farms and experimental branches grew to 16 by 1932. By 1960, the number of branches was consolidated to nine representing most of Ohio's major soil types.

### 1893

Five-year rotation experimental plots of corn, wheat, oats, clover, and timothy demonstrated the value of crop rotation and amendments with manure and commercial fertilizers.

### 1897

The experiment station published the first comprehensive *Ohio Weed Manual*. The second was published in 1906.

### 1898

Sugar beet experiments were initiated.

### 1905

An experiment revealed that silage may profitably be substituted for a considerable portion of grain ration usually fed to cattle.

### 1905

Fifteen years of research proved that tomatoes may be grown under glass in Ohio, if grown as a late spring or early summer crop.

### 1908

The mid-summer seeding of alfalfa on land that has been well cultivated for 4 to 8 weeks was the most reliable method of getting a good stand. Summer seeding remains a viable alternative to farmers.

### 1908

*A Condensed Handbook of Diseases of Cultivated Plants in Ohio*, widely used as a textbook in the U.S., was written and published.

### 1909

Skim milk, soybeans, tankage, middlings and pasture greens all proved to be valuable additions to a corn diet for hogs.

### 1909

Scientists isolated and described the *Colletotrichum* pathogen causing wheat anthracnose and the *Fusarium* (*Gibberella*) pathogen causing wheat scab.

### 1910

Milling and baking tests using the station's wheat were begun.

### 1911

The nutritional superiority of bluegrass, timothy, redtop and orchardgrass was established.

### 1916

The first wheat variety was released from the Ohio Agricultural Experiment Station.

### 1916

A method for the rapid determination of total carbon in soils was published.

### 1919

Studies showed a reduction in size and productivity of the dairy animal when inbreeding occurred.

### 1920

Ohio State researchers were the first to use alfalfa experimentally in grass mixtures for forage crops.

### 1921

The first attempt at insect control by aerial application of a pesticide was conducted at Troy, Ohio, by OAES researchers in cooperation with the U.S. Army.

### 1922

Researchers designed a new belt-power dynamometer with a recording device that was the first of its kind.

### 1923

Scientists recommended incorporation of cod-liver oil in the diets of animals. This oil provided sufficient dietary vitamin D.

### 1924

A 30-year study on soil fertility revealed that crops grown in rotation yield more with a much lower expenditure for manure and fertilizers. Also, phosphorus must be added to Ohio manures to maximize manure benefit.

### 1926

Research indicated that the addition of ground ear corn was the most effective preservative for legume grass silage.

### 1927

The widely used potassium dichromate method for determining percent organic matter in soils was published.

### 1929

Scientists reported the feasibility of maintaining egg production by laying hens in wire cages.

### 1930

Vitamin D supplements were perfected for addition to milk as a preventative for rickets.

### 1931

*Manual of Ohio Weeds* was published.

### 1931

Data on the establishment of turfgrass on subsoil for 1927 through 1931 were summarized.

### 1932

Researchers from Ohio State were the first to test and report on the pneumatic tractor tire. Steel-lugged tractor wheels would soon be replaced.

### 1935

Federal Soft Winter Wheat Laboratory was created at OAES.





**1935**

Scientists conducted research on the basal metabolism and food consumption of college women. This research, along with research on calcium-phosphorus metabolism of college women (1946) and the calcium, phosphorus and nitrogen metabolism of older women (1950), contributed to the knowledge base currently used to formulate recommendations for nutritional prevention of osteoporosis in women.

**1937**

Franklin was the first of five apple cultivars released by OAES researchers. Other cultivars and their years of release include: Melrose, 1944; Ruby, 1953; Holiday, 1964; and Holly, 1970.

**1938**

A rapid whole-blood test to detect the carriers of *Salmonella pullorum*, a pathogenic organism in poultry, was developed.

**1938**

A 14-year minimum tillage experiment was started to examine the principles of preparing land for corn.

**1947**

Scientists initiated development of the artificial rumen and digestion trials for use in nutrition research.

**1947**

The discovery of a disease-resistant gene in wild tomatoes resulted in the release of the first *Fusarium* wilt-resistant greenhouse tomato.

**1949**

OAES researchers showed that a lipase found in the stomach contents of calves and kids was responsible for the characteristic flavor of "Provolone" and "Romano" cheese.

**1950**

Researchers developed the use of band seeding and press wheels for forage establishment.

**1950**

Researchers discovered the role of the Bursae of Fabricius in the immunological response of the chicken.

**1952**

Scientists developed a method for measuring free fatty acids in dairy products. This procedure is still in use today.

**1952**

The Soil Evaluation Laboratory was established.

**1954**

Scientists used radioactive tracers to identify seven vitamin B12-active substances in rumen microorganisms.

**1955**

Scientists demonstrated that a *Phytophthora* fungus was the casual agent of a new devastating disease of Ohio soybeans.

**1957**

Research in processed cheese flavor enhancement by using fresh cheese curd in brine solution shortened the procedure from six months to seven days.

**1960**

The first no-till plots in the United States were established.

**1960**

Researchers developed an electrical resistance network to study the theory of water movement in soils.

**1960**

OAES scientists were the first to release soybean varieties that were resistant to *Phytophthora* root-rot disease.

**1961**

Lysimeters were constructed to investigate strontium-90 occurrence in soils, plants, runoff and leachate.

**1962**

OAES and USDA scientists initiated a biological control program against the alfalfa weevil.

**1963**

The discovery of maize dwarf mosaic virus in Ohio cornfields led to the discovery of other corn viruses resulting in the development of resistant corn lines.

**1965**

Research on the managerial role of homemakers led to the Deacon-Firebaugh systems model of family resource management.

**1965**

Researchers began identifying the principal insect vectors of a number of widespread maize viruses and mycoplasmas.

**1966**

The optimum age and conditions for vaccination control of bovine brucellosis were developed.

**1967**

The technique of dipping hatching turkey eggs in antibiotic solutions to control egg-transmitted pathogens was developed.

**1968**

The role of respiratory viruses as causes of fetal infection and abortion in cattle was recognized.

**1969**

The first interspecies transmission of swine influenza in turkeys was demonstrated.

**1970**

Methods for diagnosing TGE, rotavirus and atypical rotavirus infection were developed and evaluated.

**1970**

The Laboratory for Environmental Studies was created to conduct and coordinate research on air and water pollution, animal waste management, pesticides and environmental enhancement.

**1970**

A comprehensive Ohio Christmas tree research program was initiated.

**1970**

Scientists successfully tested a procedure enabling dairy cows to give milk without motherhood. By injecting natural hormones into problem breeders, they were able to induce lactation in many animals.

**1970**

A disease-resistant gene discovered in a wild tomato strain was incorporated into greenhouse tomato lines giving them resistance to the tobacco mosaic virus.

**1972**

Initial work in biotechnology was begun by studying Stewart's wilt disease of corn using DNA cloning techniques to isolate genes responsible for the virulence of the bacterium that causes the disease.

**1972**

Studies were begun on conserving greenhouse energy using double poly covers, polystyrene pellets, computerized light and nutrition relationships.



**1973**

An intermittent lighting program using only five hours of light per day was as efficient in promoting turkey egg production as the traditional 14-hour continuous lighting program. A 64 percent reduction in lighting energy was realized.

**1976**

Toxic levels of PCB and PBB in cattle were determined.

**1976**

A live vaccine containing *Pasteurella haemolytica* to control bovine respiratory disease was developed.

**1976**

The first known method for in vitro propagation of rotaviruses, the most common cause of enteric disease in animals and humans, was established.

**1977**

A disease suppressive container medium of composted pine bark used for growing ornamental plants was perfected.

**1979**

The role of infectious bursal disease virus (IBDV) in turkeys was defined.

**1979**

A habitat study of the endangered bobolink, blue winged teal and mallard duck was completed in the Lake Erie Marsh.

**1980**

Researchers developed mathematical models for describing corn virus disease epidemics.

**1983**

Cholesterol-free, liquid formula diets, providing less than 10 percent of food energy as fat, lowered levels of the "good" or HDL-cholesterol in blood and produced less favorable blood lipid profiles than a typical U.S. diet.

**1984**

Studies revealed that selenium and vitamin E deficiencies directly affect the occurrences of clinical infections in mammary glands and uterus.

**1985**

Genetics research indicated that the walk-

ing ability of large-bodied turkeys could be greatly improved by genetically increasing the relative amount of leg bones.

**1985**

A commercial microcomputer-based disease forecasting unit for predicting plant disease infection periods was developed.

**1986**

Researchers developed a patented process for the production of disease suppressive composts by their inoculation with specific antagonists of soilborne pathogens.

**1986**

A satellite remote sensing-based study was completed which inventoried Ohio's biomass energy.

**1987**

Thirty-four years of research resulted in the selection and propagation of supersweet sugar maple trees for production.

**1987**

OARDC scientists were the first to propagate a swine atypical rotavirus in cell culture and to develop diagnostic tests. Similar viruses were later found to cause diarrhea in human infants. The swine diagnostic reagents are currently in use to diagnose human infections.

**1987**

A patent was issued for the development of calcium soaps which provided "protected" fats as feeds for dairy cattle.

**1987**

Methods for identifying ecologically similar forest study sites have been jointly developed by researchers at OARDC and several other universities. This technique forms a basis for designing studies of air pollutant effects on forest ecosystems in the U.S. and for collaborative studies with scientists in Poland, Estonia, and the Commonwealth of Independent States (former Soviet Union).

**1988**

The role of environmental pathogens was defined as causative agents of bovine mastitis, the most expensive disease affecting the dairy industry.

**1988**

A Natural Resources Information System (NRIS) laboratory was created.

**1989**

The first nucleic acid hybridization assay for the detection of infectious bursal disease viruses in clinical samples was developed.

**1989**

Researchers developed a new test that speeds detection of bovine viral diarrhea virus (BVDV). BVDV plays a major underlying role in cattle production losses. The diagnostic probe decreases detection time from an average of 5-10 days to 2 days which increases cattle survivability and decreases losses.

**1989**

Research suggested that school consolidation may negatively impact the viability of a community.

**1991**

Researchers found that tracheal mites, serious threats to honeybee colonies, are able to discern young bees, which they prefer, from old bees based on differences in the hydrocarbons of the bee's cuticle. Treating bees with vegetable oil appears to confuse the mites, making it difficult for them to colonize their hosts.

**1991**

OARDC scientists first reported that the secretion of testosterone in male turkeys begins at the same age that males start to grow more rapidly than females indicating an association of testosterone secretion with rapid growth.

**1991**

Chemical elements deposited in the wood of annual tree rings are proving to be indicators of past environments experienced by Ohio tulip trees. This discovery is now being used to assess historical changes in air pollutant deposition, climate and various environmental stresses in forests.

**1992**

No differences in student achievement on standardized test scores were found between high and low per pupil expenditure rural school districts.



## *OARDC Today*

All Ohioans benefit from research conducted at The Ohio State University's Ohio Agricultural Research and Development Center.

Ohio's 80,000 farm families benefit from the results of agricultural research translated into increased earnings and improved living conditions. So do the families of the thousands of workers employed in the firms making up Ohio's giant agribusiness complex.

But the greatest benefits of agricultural research flow to the millions of Ohio consumers. They enjoy the end products of agricultural science — the world's

cleanest and most wholesome and nutritious food at low cost, attractive lawns, beautiful ornamental plants, and hundreds of consumer products containing ingredients originating on the farm, in the greenhouse and nursery, or in the forest and ponds.

OARDC research deals with the interrelationships of all agricultural production and marketing practices. It is concerned with the development of an agricultural product from the germination of a seed or development of an embryo to the consumer's dinner table. It is directed at improved human nutrition, family and

child development, home management, and all aspects of family life. It is geared to enhancing and preserving the quality of our environment.

The center's scientific staff is well-trained in a wide range of disciplines. The laboratories are equipped with modern, sophisticated instruments which permit extremely accurate analyses.

Individuals and groups are welcome to visit the Wooster location, to enjoy the aesthetic value of its buildings, grounds, and arboretum, and to observe research aimed at the goal of better living for all Ohioans.







